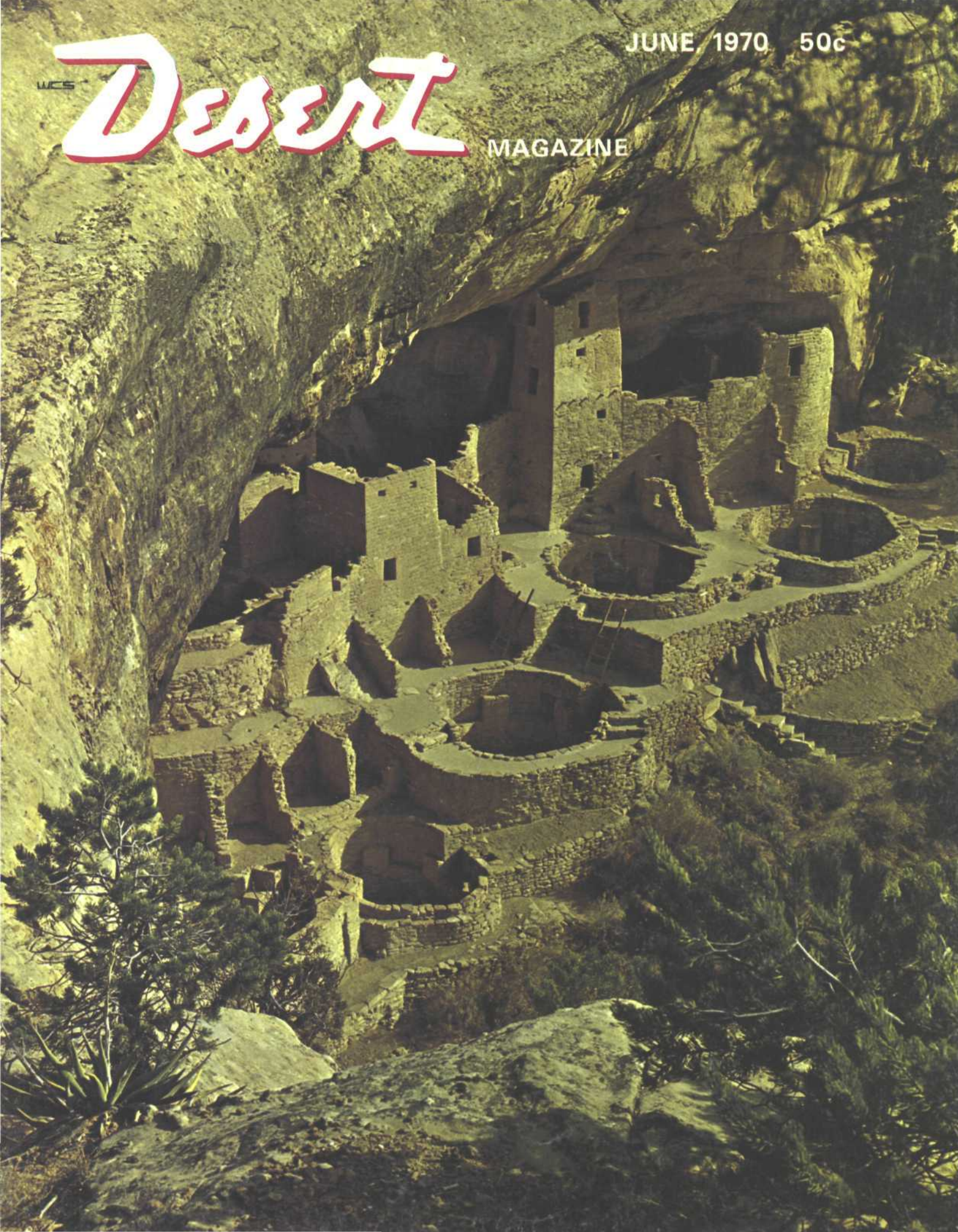


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SOUTHWESTERN INDIAN ARTS & CRAFTS by Tom Bahti. Beautifully illustrated with 4-color photographs, this book describes the arts and crafts of the Indians of the Southwest and offers suggestions on what to buy and how to judge authentic jewelry, rugs, baskets and pottery. Large format, heavy paperback, 32 pages, \$1.00.

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LOST MINES OF ARIZONA by Harold Weight. Covers the Lost Jabonero, lost mines of the Trigos, Buried Gold of Bicuener and others of southwestern Arizona. Paperback, \$2.00.

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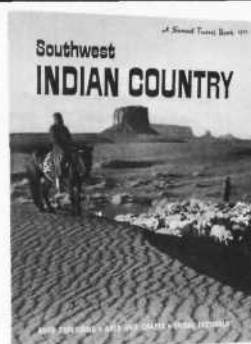
A FIELD GUIDE TO WESTERN BIRDS by Roger Tory Peterson. The standard book for field identification sponsored by the National Audubon Society. 2nd edition, enlarged with new section on Hawaiian birds. 658 in full color. Hardcover, \$4.95.

THE DESERT LAKE by Sessions S. Wheeler. The story of Nevada's intriguing Pyramid Lake, its ancient history, archeological finds, geology, fish and bird life. Paperback. \$2.50.

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Volume 33, Number 6

JUNE, 1970

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THE COVER:

The Anasazi—meaning the "ancient ones"—built giant cliff dwelling communities throughout the Southwest such as this one at the Mesa Verde National Park in Colorado. Photo by David Muench, Santa Barbara, California.

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A Peek in the Publisher's Poke

LOVERS OF the great outdoors and more particularly, lovers of the desert, are indebted to three gentlemen who were implemental in stopping an alleged land give-away in California. Alfred Kramm of the Western Rockhound Association, Alfred Nelson of the California Outdoor Recreation League and Al Pearce of the Ontario-Upland Daily Report and a Desert Magazine contributor, unearthed the facts that both a United States Senator and a Congressman had introduced identical bills requesting the Federal

government to quit claim a 1200-square-mile section in the northeastern part of San Bernardino County. This land is prime recreation land mentioned just recently in the much-awaited BLM report. Our hats are off to the alertness of these three and the untold numbers whose actions resulted in the withdrawal of both bills and saving a much-needed recreation area, the size of the State of Rhode Island, from becoming private property and being lost to untold millions in years to come.

Texas has long been known as a state that does things in a "big way" but I do believe California has come up with a tough one to beat. In the first arrest in Riverside County for violation of the U.S. Antiquities Act, which prohibits the removal of Indian artifacts by anyone other than an authorized archeologist or other professional, an Indio, Calif. man has pleaded guilty to charges of removing a 1200-pound bedrock mortar from Federal land in Martinez Canyon. To complicate things the mortar was located 3000 feet up a steep and narrow gorge and no one has come up with a method of returning the stolen mortar. Your turn Texas!

My how the time flies! Here it is May again and as has been our policy the past two years, our little book and crafts store will be closed on weekends for the duration of the summer. The summer hours during the week will be 7:30 to 4:00.

Desert Magazine this month salutes the Indians of the Southwest. These tribes are known across America and some of their individual members, like Cochise and Geronimo, are household words. Our desert Indians are a gifted and creative people and have developed the art of silversmithing and jewelry making to its present height of interest. Basket weaving and pottery making are two more facets of these tribes that have helped the Indian in his search for independence. With the coming of the summer those visiting in Arizona and New Mexico will get a chance to see the gathering of the tribes at two of the finest displays of Indian dances in the world, the All-Indian Pow Wow at Flagstaff, Ariz. and the Inter-Tribal Ceremonial at Gallup, New Mexico. For details, see page 20. We hope you enjoy this issue and that you find the contents informative and exciting but one look at the cover should have told you we'd come up with a cliff-hanger!

William Kramm

Rambling on Rocks

by Glenn and Martha Vargas

THOSE INVOLVED in amateur gem cutting soon come to realize that if there were no agates, the popular pastime of cutting cabochon (dome-shaped) gems would be practiced by very few. There are branches of gem cutting that do not depend upon agate, or make use of it in only small amounts, but these arts are practiced by few, and most started by cutting agate.

The person who carves gemstones will find there are many minerals, usually softer than agate, that will suit his needs very nicely, and he can go on in the absence of agate. The cutter of faceted gems can spend his entire lifetime hobby cutting nearly 100 different minerals, and never produce an agate faceted stone. In fact, he would be wasting his time if he did, as agate does not respond to faceting.

The thing of interest here is that nearly all amateur cutters of faceted stones cut more quartz gems (amethyst, citrine, etc.) than any other material. Hereby hangs a very interesting tale. Agate is a form of quartz, and thus if there were no agate, in all probability there would be no quartz.

First, let's talk about quartz, and perhaps some readers may wonder why we did not entitle this column "Quartz: The Cornerstone of Gem Cutting." Of the thousands of minerals to be found in the crust of the earth, quartz is probably the most unique. First, it is the most common of all minerals, being found in most geological formations, sometimes in huge amounts.

Second, as a result of its atomic makeup, it is practically indestructable. Chemically, quartz is one part silicon, a metal, and two parts oxygen. Each of these elements has an incomplete atomic makeup

with both having shortages of electrons that the other can fill. This "sharing" of electrons gives the quartz compound (SiO_2) a stability that is so great that few forces found normally on earth can tear it apart. Most minerals are not so stable, and may easily deteriorate or change into other minerals.

Third, quartz forms in many varieties. The best known are amethyst, rock crystal, agate, flint, and others. In its purest form, quartz forms into colorless water-clear crystals (rock crystal) of a hexagonal form. The hexagonal form is true of all quartz crystals. When crystals of quartz form under less than ideal conditions, or in the presence of minor impurities they may be purple (amethyst), yellowish (citrine), smoky color, or even pink. Each of these colors is of interest and value to gem cutters of many skills and techniques. Fourth, quartz is 7 in hardness on a scale of ten; thus it is above average hardness. A knife blade has a hardness of about $6\frac{1}{2}$.

Quartz is always deposited out of a cooling solution. If, at this time, there are many impurities present, or conditions are extremely adverse, the crystals do not grow to visible size. Many crystals start to grow, but just at the point that each is well started, another starts on or adjacent to it and stops the growth of the former. This results in what is known as cryptocrystalline.

The prefix crypto is from the Greek meaning hidden, and here it is combined to mean hidden or invisible crystals. These minute crystals have grown in such a manner they are somewhat intertwined, giving the resulting agate a toughness that is not present in crystalline quartz. It now resembles a waxy lump with no regular outward form.

The toughness of agate is of great interest as it assists in giving greater wearing quality to the gems. The toughness also assists in producing a lustrous polish on the gem surface. The matter of impurities is also of great interest to the gem cutter. The quantity and variety of these impurities tends toward producing agate of many colors and infinite color patterns.

Seldom can one find two identical pieces of agate. An agate-like material with little or no visible impurities is found, and is commonly called chalced-

ony (pronounced KAL-SED-ONY). Agate being that which contains visible impurities, but retains some translucency. When the material has impurities in amounts great enough to make the material opaque or nearly so (such as flint), it is called jasper.

The average rockhound recognizes and uses these three terms even though he cannot be certain just where each stops and the other begins. The mineralogist, on the other hand, does not bother with the fine points of separation, and calls the whole cryptocrystalline quartz group by the name of chalcedony. To the mineralogist, the amount of impurities in the material does not alter it and thus he says that he is concerned with chalcedony of variable impurity.

The rockhound feels he must try to distinguish between these various states of impurity, and goes so far as to give names to many of them. Thus we have moss agate, plume agate, banded agate, flame agate, agates named for a distinctive color (carnelian, chrysoprase), and also similar names for the jaspers. Along with the names for the types of these materials, those from certain bountiful localities also have been given names. We have Montana moss agate, Texas plume agate, Brazilian agate, Biggs Canyon jasper, and many others.

In previous columns when we discussed geodes and nodules, we spoke of agate being the usual filling, and to these can be added agate filled seams or cracks. Within each of these enclosures may be found all of the types named above, plus many others. The type and size of opening that may have been filled with agate is almost unlimited, as is the color and pattern of the agate itself.

To go still further with this variability, we find petrified wood is preserved with cryptocrystalline quartz. Other minerals are also involved in petrified wood, but these are rare. The famous petrified forest of Arizona is preserved in jasper, and is known as jasperized wood. Along with the agates found in Montana is agatized wood, with many other like situations. We will discuss petrified wood in a future column.

Rockhounding is now the most popular of all hobbies, and it is little wonder when we realize the marvelous diversity and availability of agate. Now that summer is nearly here, let's go agate hunting!

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Book Reviews

by Jack Pepper

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By the Editors of Sunset Books

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In addition to the planting and care of the plants there are special sections such as how to pot cactus and how to graft cactus. Selection of plants and landscaping ideas are featured. Large format, heavy paperback, 80 pages, \$1.95.

BARBED WIRE HANDBOOK AND PRICING GUIDE

By Thomas Edward Turner

The latest book for barbed wire collectors contains 418 different kinds of barbed wire and associated items which are described and illustrated with line drawings. Most also list the current value of the strands. Paperback, 102 pages, \$3.95.

CAMPING HANDBOOK

Compiled by Sunset Editors

While emphasizing the fun of camping, this comprehensive guide provides basic information on the practical aspects of living out-of-doors. Formerly titled *Family Camping*, it has been completely revised to include the latest information on equipment and camping vehicles.

There are chapters on locating the best campgrounds, getting ready for the trip, selecting and transporting equipment, and a chapter on camp cookery. Others include renting and buying recreation vehicles, first aid, hiking tips and many others. With this book you can start planning your summer vacation now.

Large format, well illustrated, heavy paperback, 96 pages, \$1.95.

COLORFUL DESERT WILDFLOWERS

By Grace and Onas Ward

Covering the flowers of the Mojave, Colorado and Western Arizona deserts, *Colorful Desert Wildflowers* is designed to "stimulate interest in the flowers of the desert, and to aid flower lovers in identifying the main varieties."

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The authors have lived on the desert for 33 years and during that time have made hundreds of slides of flowers of which 190 are used in their book. To make them more easily identifiable, they have segregated them into categories of red, blue, white and yellow.

Printed on heavy, slick paper, the illustrations are identified by their common, scientific and family names along with a description and where they are found. Color photos are five inches square, making identification easy.

Heavy, slick paperback, the volume contains pages for making individual notes. \$4.50.

RELIC—TRAILS TO TREASURE

By Wes & Ruby Bressie

The piece of "junk" you picked up during your last trip to the desert might be worth more than you thought. Or maybe you found an old relic which you can't identify so you stored it in the garage.

With this new book collectors can expand their activities and knowledge of the value of relics and where and how to

find them—not only on the desert, but also in junk shops, Flea Markets and old estate auctions.

Items covered in this fascinating book range from Indian arrowheads to children's toys. Other items which once were of little value but today are considered collectors items include powder flasks, dolls, axes, irons, kettles, posters and miners picks.

Illustrated with hundreds of photographs and with a separate price list for the items listed, the new book should be collected by all collectors. Heavy paperback, 191 pages, \$4.50.

MAP OF THE CALIFORNIA CITY AREA #5

Compiled by Dale Hileman

Dale Hileman has compiled another gem, mineral and 4-wheel-drive map—this time on the California City area including Castle Butte, Peerless Valley and North Edwards in California's Kern County. This is an excellent gem collecting and exploring area and the map is very detailed, #5, \$1.00.

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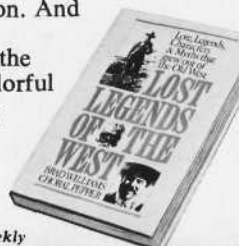
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ARIZONA RUBIES

by Maurice Kildare



NOTHING FUELS the excitement of a gem hunter more than an unexpected "find." So it was recently when several rockhounds on Garnet Ridge in north-central Arizona let out reverberating whoops and hollers. The rest of the party, scattered all over the dull colored ridge, hurried to the site. The group of 14 people, led by E. G. (Doc) Williams of the Flagstaff Gem and Mineral Society, had found a new bed of blood-red garnets.

These stones have gained fame as "Arizona rubies." They are harder than others found elsewhere. However, western New Mexico, next to the Arizona border, has a few small producing areas. These stones are of the same unusual quality.

I can remember as a kid cowboy an old frontiersman called them petrified blood. In Querino Valley in eastern Navajo country I stopped tracking several mules and began filling my hat with them. They were that numerous on the ground. The old frontiersman with me,

more than 75-years-old, knocked them out of my hands, shouting: "Them's frozen blood! You're crazy and bad luck will haunt us from now on!"

Despite his predictions, we tracked down his four Spanish mules without any difficulty. So far as I know no rockhounds have ever hunted for garnets in Querino Valley, just north of the highway near Houck. Garnets have been picked up there along with other tiny gravels and used by ants building their dens. But no red or black ant that I ever saw could drag a ten-carat stone to the mound.

Even American garnets are classified according to European standards. Therefore we find that the Arizona stones are in the same category as the Hungarian pyrope garnet, which is softer and an inferior stone.

Williams is an old-timer hunting semiprecious gemstones in the colorful Painted Desert and the greater southwest. He has found them all over Arizona, New Mexico (where he was born and raised), southern Utah and even as far north as Idaho.

His favorite hunting grounds are lo-

cated in the Arizona's Navajo Reservation. This was why he conducted fellow members of the local society to Garnet Ridge. It is located exactly 6.7 miles northeast of Denehotso trading post.

A woman in the party found a conglomerate containing thousands of tiny garnets in small fragments that had broken out of a ledge. It was from this formation from which the stones on the low ridge eroded.

The Arizona blood-red garnets were first found by frontiersmen in the Dinnebito Valley of the western Navajo country long before 1900. From this valley Williams has picked up several thousand.

Editor's Note: Dinnebito is Navajo; *dine* meaning people, and *bito* meaning water or spring. It is spelled various ways in different maps and books: Denebeto, Denebito, Denabito and Tinebito.

The Dinnebito lies north of Grand Falls on the Little Colorado River and runs north to Coal Canyon, a tributary of Blue Canyon. The valley is divided by a wash that empties into the river. By this beginning stream in flood during the spring runoff of melting snow and ice, millions of the stones have gone down-



Millions of garnets from Dinnebito Valley in Arizona's western Navajo Country have washed down and over the Grand Falls on the Little Colorado.

stream into the big Colorado and on to the Gulf of Lower California.

Back in the 1880s and 1890s, garnets of the Dinnebito, ten to fifty carats, were bought from Navajo Indians by local traders (my father was one of them). At one time they were mined by dry panning and shipped to dealers in Los Angeles and New York City.

The supply at that time seemed endless but the demand for them by jewelers sloughed off. They could be bought in foreign countries at half the price. Very soon the Arizona garnet was worth about 10¢ each. In recent years so many hunters have been in the Dinnebito that they are very scarce on top of the ground. The one recourse now is to mine them from lower stratas above bedrock.

The same situation is true at Garnet Ridge. But, as Williams points out, after spring runoff or following heavy rains,



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Veteran garnet collector E. G. "Doc" Williams examines rock filled with blood red stones. On table are part of more than 25,000 garnets he has collected in Arizona, New Mexico, Utah.

the hunter can go back over the same ground and find more that have been exposed on the surface.

For both Garnet Ridge and the Dinnebito the desirable garnets average is ten carats. However, some have been found in Dinnebito Valley running to 80 carats. Williams, in his collection of at least 25,000 blood-red stones, has several of ten carats.

When visiting the Navajo country he finds garnets but also buys many from Indians who have gathered them while herding sheep or cattle, or just walking around.

As soon as his gem hunters pitch camp and Navajos hear he is present, they show up at the blazing night fire. They have accumulated a tobacco sack of stones to sell. Since he knows most of them as long time friends who used to trade



with him in Flagstaff, he always buys, regardless of how worthless the stones may be. Navajos first interested him in garnets. For more than 20 years he and Mrs. Williams operated a saddle making and leather goods shop where Navajos started bringing him garnets.

After retiring from business 10 years ago, Williams turned to rockhounding as a hobby. He now has some of the world's most beautifully polished rocks in his collection (from all over the world). But he is proudest of his jars of garnets.

There are other rich areas of garnet beds on the Navajo Reservation not yet explored or known to semi-precious gem collectors. Since the 1880s Indians have been selling stones from them to traders. They vary in color and are not all deep red.

Williams relates an interesting story about a trader once in business not far from Garnet Ridge. For years he bought garnets from children herding sheep. They swapped the stones for candy, cookies, apples or oranges. He took them in trade only as an accommodation, not suspecting they would be valuable.

Near the end of his trading days he had 400 pounds of garnets. A New York

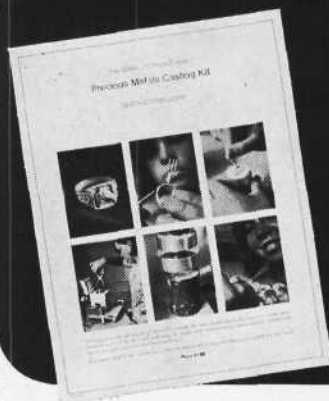
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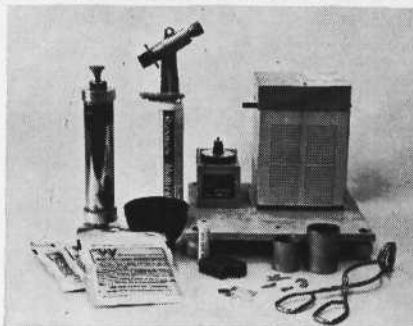
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jewelry firm offered him \$4 a pound but he declined to sell.

"After I retire from business," he told Williams, "I will sell a few pounds at a time and that will be my spending money!"

The areas remaining in Dinnebito Valley where garnets still can be found on the surface are difficult to reach. But Williams and his fellow rockhounds solve this by towing small vehicles behind their campers.

After traveling as near as possible to the search area, camp is established. The back country vehicles are then unhooked and used to negotiate sand beds and ridges, and to get over washes and around massive rocks. On returning to camp, they have a community feast.

Under moon and starlight near the sagebrush fires the rockhounds hold a "happy hour." Williams is an old-time fiddler who saws out the stringed music while the rest join in group singing.

This impromptu entertainment is certain to draw Navajos from nearby hogans, if they are not already on hand. They also readily reveal where they have recently picked up a few garnets. Yet, only in rare instances, will the site prove worthwhile.

On one occasion, Navajo friends described a field of gemstones not far from his camp. Assuring him they were not red, they insisted that the "white-greenish" stones were garnets all the same.

Unable to determine from their descriptions what the gemstones might be, he went there. They proved to be peridot, located north of Fort Defiance where he prospected for a new gemstone field at the time.

Garnet Ridge and the Dinnebito Valley are the largest known garnet fields on the reservation. But it could well be that Querino Valley, when fully explored and tested, will be as great or more so.

To those rockhounds unfamiliar with the reservation it is advisable to inquire of the Navajo Tribe's Parks and Recreation Department, Window Rock, Arizona, for the latest available information.

There are several small areas, not publicized, that are difficult to enter. Hiking or by horseback is, in some cases, the only way to reach them. No matter how you explore Arizona's gem fields, you'll have excitement of an unexpected "find." □

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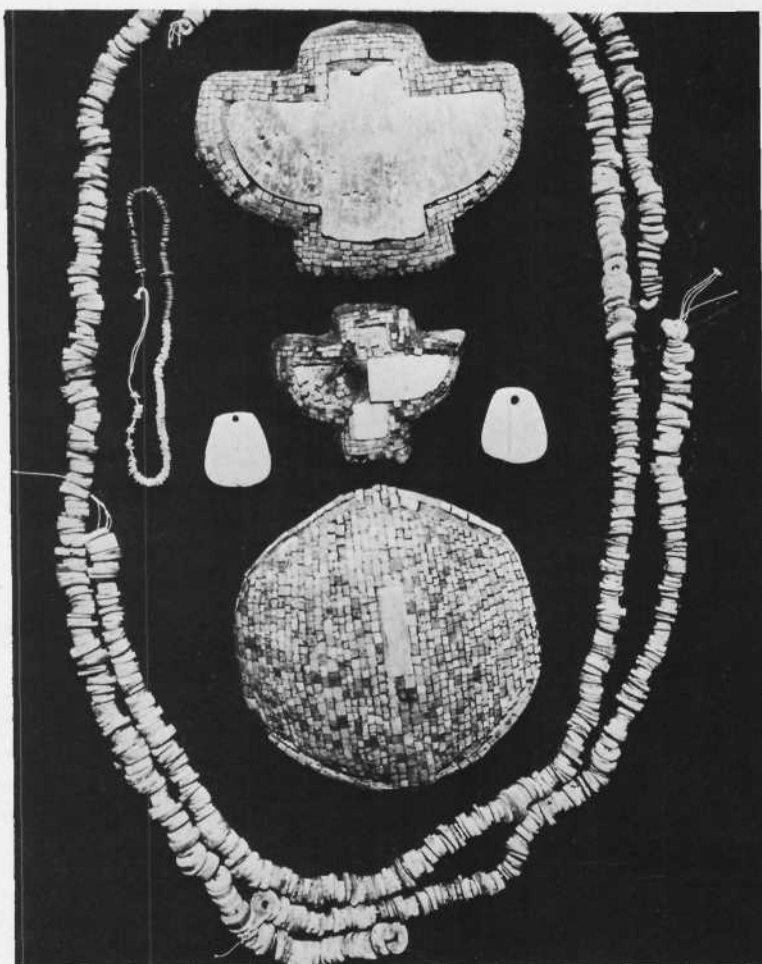
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Prehistoric Hobokam shell and turquoise beads and jewelry from Casa Grande National Monument. Below, Hobokam jewelry included cone shell tinklers (A & C), clam shell bracelets (B), and olivella shell necklaces. Photos courtesy National Park Service.

WHAT ARE sea shells doing on desert trails, in caves and in Indian ruins many hundreds of miles from ocean waters? Desert explorers have been asking this question ever since they first explored the West and delved into Indian ruins.

The ancient Anasazi, Sinagua and Hohokam left thousands of worked and unworked shells behind in their ruins. The modern Pima, Papago, Hopi and Zuni are still busily engaged in turning shells into objects of beauty.

How have the Indians of California, Arizona and New Mexico become so familiar with shells from the distant seas? This question helped early-day explorers to find ancient trade routes through the deserts and mountains of the West.

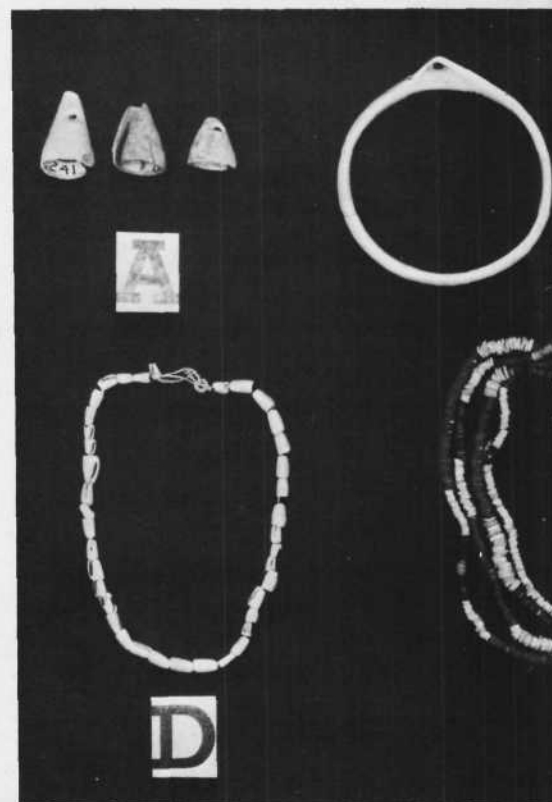
Father Eusebio Francisco Kino was probably the first white man to be intrigued with sea shells and their value. During his expeditions to southern Arizona Indian villages in the late 1690s, this pioneer Jesuit missionary was pre-

sented with blue abalone shells. (See "The Romance of the Blue Shell," *Desert*, Oct., 1964).

The blue abalone could only have come from the Pacific coast of California. Thus began his search for the elusive land passage to California, which was then believed to be an island. His explorations finally proved the Gulf of California did not surround the "island" but ended at the mouth of the Colorado River. But it was left to Juan Bautista de Anza to blaze the land trail to California in 1774—and all because of a blue sea shell.

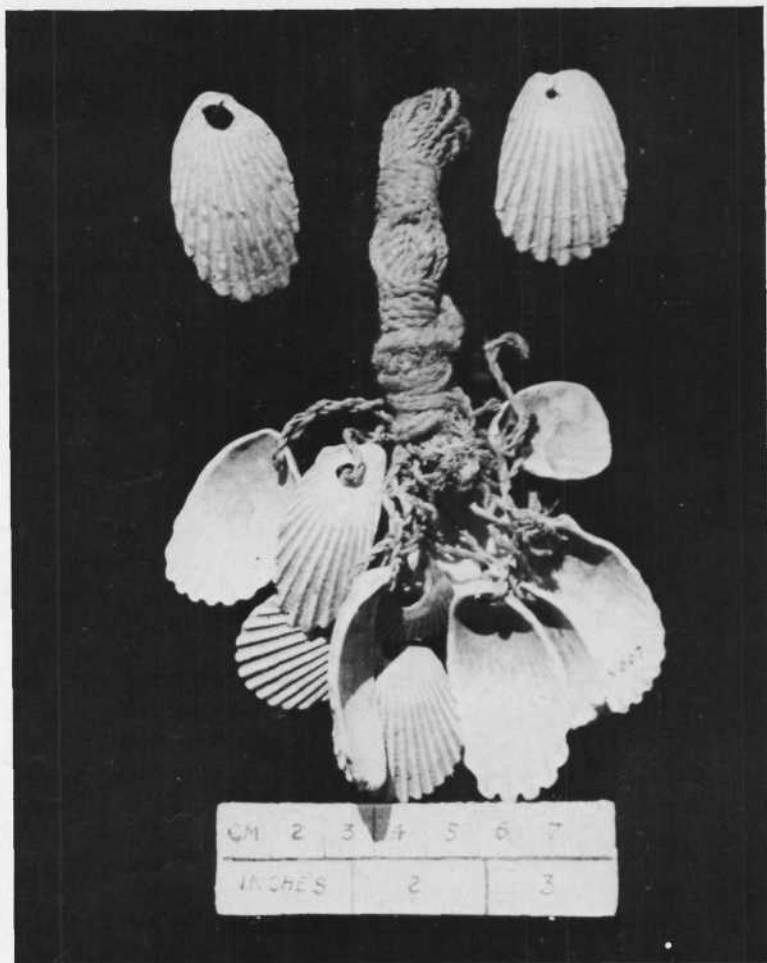
Later explorers came to the same conclusion: that sea shells had been carried overland from the Pacific Ocean, as well as from the Gulf of California and the Gulf of Mexico. They were brought to inland tribes who valued them because of their beauty and rarity. Sea shells were, in fact, one of the main trade items among the various tribes. Even white traders took advantage of this fact, bring-

Sea on Desert



Shells Trails

by Janice Beaty



Pecten circularis shells tied to yucca cord found at Montezuma Castle National Monument. Sea shells were one of the main trade items between inland and coastal Indians. The trade routes helped Spanish missionaries to discover overland routes.

ing in numbers of highly valued shells. As late as 1880 a horse could be traded from a desert Indian in exchange for a single shell of the red abalone from the Pacific Coast.

It soon became evident that ancient trading routes across the desert could be determined by identifying the shells found at the various ruins and tracing them back to their coastal origins. Eventually Dr. Donald Brand was able to outline a number of these trade routes across Arizona.

One of the main routes ran east from the Pacific Coast across northern Arizona just north of the present U. S. 66. At Peach Springs a northeast branch went along the rim of the Grand Canyon to the Moenkopi Valley. A second branch followed the Little Colorado and its tributaries into the Zuni country of New Mexico.

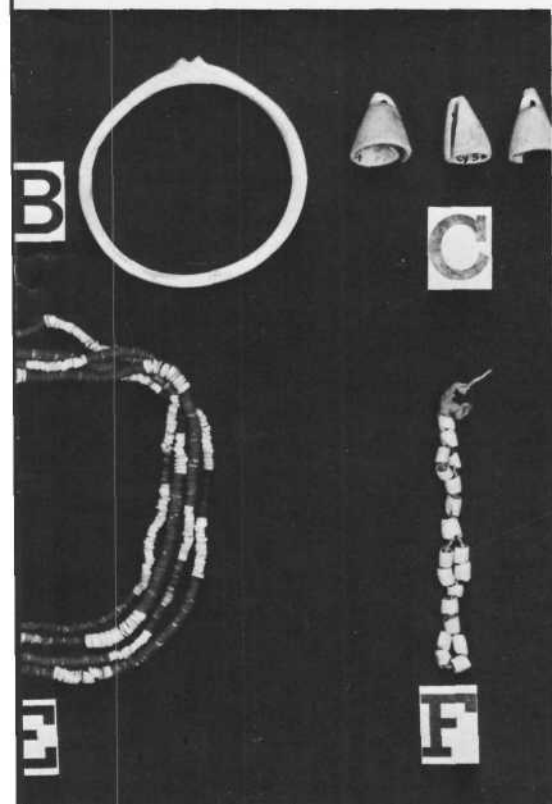
A southern route began at the Gulf of California and ran up through the

Hohokam settlements around present Phoenix to the Verde River. At present Camp Verde, it divided, one branch going up Oak Creek to Flagstaff, the other east to Chavez Pass and on to the Hopi country of northern Arizona. Hopi pottery and turquoise went south along this route, while salt, cotton textiles and feathers, as well as shells, were carried north.

Another Arizona route began at the Hohokam settlements around Phoenix and went up the Salt River and its tributaries over to Fort Apache and eventually into Hopi country.

The sea shells which identified these ancient trade routes are of special interest to modern desert visitors because they can be seen today in museums throughout the Southwest. One glimpse at any of these shell collections leads the visitor to realize why desert Indians prized sea shells so highly.

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the Visitor Center of Montezuma Castle National Monument, for instance. Shell necklaces made of tiny olivellas from the Gulf of California predominate here as in most of the collections. They were the most commonly used shell of all, perhaps because they were small (less than 1/2 inch), plentiful, easily transported and easily worked into beads. Merely grinding off either end produced a pretty little bead ready for stringing. Single necklaces of olivella shells sometimes reached 40 feet in length!

Like most sea shells, olivellas were admirably suited for the making of jewelry. Desert Indians recognized their intrinsic beauty from the start, and converted nearly all the shells they obtained into jewelry.

The most magnificent piece of olivella jewelry ever found on the desert came from an ancient burial at Canyon del Muerto in Arizona's Canyon de Chelly National Monument. It was a five-inch-wide cuff bracelet made from 200 perfectly matched olivella shells set with a fine turquoise in the center.

Perhaps the most outstanding desert shell users were the ancient Hohokam of southern and central Arizona. A number of museums display their shell creations: the Heard Museum and Pueblo Grande Museum in Phoenix, the little Buckeye Historical Museum in Buckeye, the Arizona State Museum at the University of

Arizona at Tucson, and the Visitor Center at Casa Grande National Monument.

At Casa Grande the visitor will find necklaces made of the second most common shell found in desert ruins: the *glycimeris* or bittersweet clam.

Both ancient and modern tribes made it into necklaces by scoring the inner valve, breaking it into rough squares, drilling a hole in the center of each, and then stringing the rough beads. They could be smoothed down either round or square in shape by drawing the necklace back and forth through a rounded groove or over a flat surface.

Modern strands of these beads, known as "heeshee," are still eagerly sought by Indians and white visitors from the few tribes who produce them. Indian craftsmen at the Santo Domingo Pueblo in New Mexico, for instance, sell such necklaces from \$4 to \$18 a strand, depending on the quality.

The Hohokams and others also made arm bracelets from single valves of the large Spotted Bittersweet Clam. The inner part was filed away leaving only an outer rim. These were worn by the dozen, ancient burials testify. The Hohokams of A.D. 900-1200 carved fine figures on their clam bracelet rims. Often a snake's body would form the band, with a snake's head in a bird's mouth at the hinge of the valve. Rings were fashioned in similar manner from smaller clam shells.

The part of the clam which had been cut out was often carved into pendants, effigies, geometric figures, or pieces used for inlay work. The Casa Grande Museum collection displays a number of favorite bird motifs, especially the pelican whose eye was drilled out for a cord to pass through.

How did desert tribes know the pelican? It is possible that they merely copied

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figurines traded to them by coastal tribes. But it is just as probable that some of the desert Indians made the journey to the coast themselves, seeing pelicans with their own eyes. Today's Hopi are experienced traders, often making long journeys to secure desired items.

Shell inlay work made with pieces of clam or abalone was among the most sophisticated jewelry produced by the ancient desert tribes. Northern Arizona Indians often used a large clam shell into which they carved niches for the tiny pieces of turquoise, obsidian, jasper, chalcedony or colored shell to be inlaid in a mosaic pattern. Wooden ear pendants inlaid with turquoise and abalone, as well as wooden combs studded with tiny shell circles are on display at the Museum of Northern Arizona in Flagstaff.

Hohokam shell mosaics can be seen at Casa Grande. They were "overlaid" rather than "inlaid" with a coating of gum rather than carved with niches to hold pieces of turquoise and shell to the shell base. These beautiful inlays were worn as pendants by priests in ceremonial dances, it is believed.

One of the most interesting uses of shells was as "tinklers." Cone shells from the Gulf of California were ground open at the large end and pierced at the narrow top for suspension. When strung on a necklace they could be rattled together, making a bell-like sound. They were sometimes sewn on clothing or to straps as well. A strap of shell bells made from large olive shells cut in half is on display at the Museum of New Mexico. Similar bandoliers of shell tinklers are worn today by kachina rain dancers to imitate the beat of rain drops. At the Corn Dance performed at the Santa Domingo Pueblo in New Mexico in August, each male dancer wears a jingling strap of shells over one shoulder and fastened

to the waist at the opposite side.

Most amazing desert shells of all are the large etched clam shells produced by the Hohokam and on display at the Arizona State Museum at Tucson. The first one was discovered in a pueblo ruin near Rillito northwest of Tucson. The interior of the clam seemed to be carved and painted in geometric designs and water symbols in red, green and black. Upon close examination it was decided that the grooves were too undercut to have been done with a tool; yet how could desert Indians have done etching without acid? These ruins were dated from the 11th or 12th century, while the earliest known European etching was produced on a coat of armor in the 15th century.

Then it was discovered that desert Indians did have acid; vinegar made from fermented saguaro fruit. By coating a shell with pinyon pitch, incising a design on it and soaking it in vinegar, similar lines to those on the ancient shell were produced. When etched shells with pine pitch still adhering to them were finally found in Hohokam ruins in the 1960s, this technique was proven beyond a doubt.

The Hohokams were indeed the first people on earth to etch with acid! How fascinating to realize it was a desert people who developed to such a high degree the art of working with shells from the sea! □

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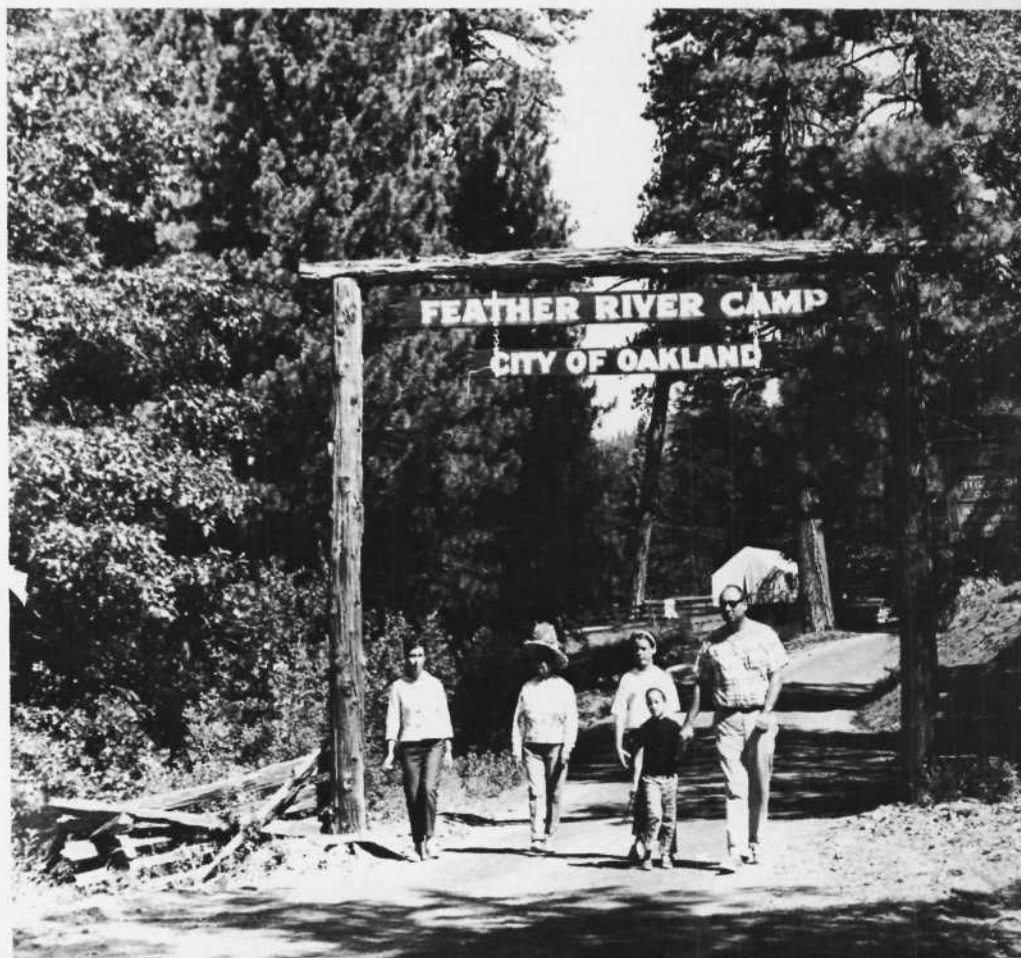
by Jack Delaney

IT USED to be that after a summer vacation camping trip during which she washed dishes and clothes, kept the tent clean and watched out for the kiddies while father was fishing and junior was playing with friends, mother needed a vacation to recuperate from the vacation.

The new mode today in tent camping is the resort-type municipal family camp which, although situated in primitive areas, offers a minimum of primitive living thus allowing all members of the family to relax and enjoy their summer vacation.

Although many of these municipally owned camps have been operating for years, as more and more families turn to the outdoors for relaxation, they are being "discovered" and new ones are being developed.

Many cities have acquired, developed, and are operating family camps in mountain regions (sometimes several hundred miles from their communities) for use by their residents, and, in most cases, by non-residents as well. Rates for a complete vacation package, or for a day or two, are surprisingly low since these camps are operated on a self-supporting, non-profit basis.



The setting and scenic attractions are unique to each camp, but the type of accommodations are usually the same. They consist of either wooden-floor tents, all-wood cabins, or some of each. Many have electric lights, while others require lantern lighting in the living quarters; and all provide a modest assortment of furnishings. In all camps guests are required to bring their own linens, pillows and blankets—or sleeping bags, if preferred. Laundry facilities, in most cases consisting of coin-operated automatic machines, are supplied.

Standard vacation activities include hiking, riding, swimming, fishing, ping-pong, volleyball, badminton, shuffleboard, horseshoes, sunbathing, and just plain relaxing. Special craft and organized play programs are usually scheduled for the kiddies and teens. In the evenings adults cavort on the dance floor, play cards, or stroll.

All of the resorts have the same goal of recreation in an atmosphere of fun and friendship. The camping season runs from approximately mid-June to early September, during school vacation time. Reservations should be made well in ad-



vance, though you might be lucky on a "drop-in" visit, without reservations.

Check with the recreation department of your city to find out if it has a family camp for the benefit of its residents. If not, contact the parks and recreation department of your state for information on the nearest resort-type municipal camp. For California write to: California Parks and Recreation Department, P. O. Box 2390, Sacramento, California 95811.

Because of the similarities in operating practice and programs mentioned above, a comprehensive review of only one of the resorts will be presented here, together with location and rate data on several of the other family camps in California.

If your favorite vacation daydream includes tall trees, blue skies, a mountain stream, a trout on your line, a bright flower beside the trail, a refreshing swim in tingling water, a stretch in the sun, and pleasant companions—you'll be happy at Oakland's Feather River Family Camp. It is located on Spanish Creek, in the Plumas National Forest, five miles northeast of Quincy off State Route 70. Here you'll find warm summer days, cool evenings, and extra-blanket nights—at an elevation of 3400 feet.

The Oakland camp has a capacity of 200 and is considered to be one of the best. Accommodations include floored tent lodgings, and at least 20 new rustic all-wood cabins with spacious porches for more outdoor living. All living quarters are furnished with cots, mattresses, and miscellaneous small items.

In the central area there is the camp office; a large veranda; a social nook, with piano; a lawn section, for games or sunbathing; lavatories and shower rooms with hot water; laundry rooms equipped with automatic washers, tubs, irons and ironing boards; a rustic dining hall, a diet kitchen for the preparation of infant formulas; a camp store for snacks, soft drinks, postcards, stamps, etc.; and three health center cabins—the treatment station, isolation, and the nurses' lodging.

The "Tot Lot" is a large fenced area where young children (two to eight years of age) may be "checked-in" for supervised activities several hours per day, leaving the parents free to enjoy adult pursuits. This is not a baby-sitting service—it is a real fun time for kiddies in a western-style play area, with group games, story hours, simple crafts, and a "juice break" each morning.

Continued on Page 36

The Feather River and the other municipal camps are located in scenic mountains and afford a variety of activities for the entire family. Among the activities are (above) horseback riding for both adults and children under the supervision of expert horsemen.



IND



SEARCHING FOR silver and other valuable possessions, the white man is once again invading southwestern Indian territory. Only this time, instead of carrying a Winchester rifle and meeting heavy resistance from native Americans, he is armed with United States currency and is welcomed by Indian artisans and merchants.

America is having its own renaissance as an ever-increasing number of people discover the arts and crafts of the Indians are as individually beautiful as those of the artisans of Europe and the Orient.

The current invasion and the resultant realization by the white visitors that Indians are individuals with their own pride and dignity intent on developing their economy to free themselves from welfare "handouts" is a major step forward in the sometimes sordid path of the last 200 years.

Today there are 170,000 native Americans in the Southwest Indian Country, majority of whom live on reservations. The most populous tribe with the largest reservation in the United States is that of the 120,000 Navajos whose land covers some 160,000,000 acres in northeastern Arizona and extends into Utah and New Mexico.

Hopi Indians are famous for their colorful kachina dolls. Among the many Indian tribes (opposite page) participating in the annual Inter-Tribal Ceremonial at Gallup, New Mexico, are those from the Laguna Pueblo. Photo by Harold Ambrosch of Palm Springs, Calif.

INDIAN COUNTRY

by Jack Pepper

Within the Navajo Reservation and yet a complete separate entity is the Hopi Reservation of 631,194 acres. The majority of the 5200 inhabitants live on three mesas overlooking the land of the Navajos — once their bitter enemies. The Navajos are comparatively new residents, having invaded the country only about 1000 years ago.

The beautiful Indian jewelry, baskets, rugs, beads and other authentic crafts

created today, which reflect the individual culture and ability of the more than 40 tribes of the Southwest, are the result of a series of invasions each of which brought new ideas, tools and basic materials for the modern-day creations.

Although prehistoric man is assumed to have been in the Southwest as early as 25,000 years ago (some archeologists say more than 50,000 years) the first community civilization was that of the Basket-

makers (circa 500 A.D.) and later the Cliff Dwellers whose culture flourished from about the mid-11th Century to the end of the 13th Century. They developed weaving, basketry and pottery making.

For some reason (most popular belief is drought or marauding tribes) the pueblo people abandoned their ancient cities around 1300. Called the *Anasazi*, meaning "the ancient ones," their ruins can be seen throughout the Southwest. Best examples are the Mesa Verde, Betatakin,





Indian Ceremonial Dances

Majority of the colorful Indian ceremonials, festivals and dances are held during the summer months and visitors are extended the privilege of attending many of them as long as they abide by the established rules.

Most Indian dances, especially in the smaller villages, are religious observances where the white man is allowed as long as he shows the proper respect. NEVER take photographs or notes without asking permission at these dances.

Probably the most exciting of the Pueblo Indian dances is the Hopi Snake Dance which usually takes place in August. The Hopi dance with live snakes, including rattlesnakes, between their teeth. The legend is the snakes will carry messages to the rain gods for showers for the crops. Hopi kachina dances are held from January to late July. Exact date of the Snake dance can be obtained by calling the Hopi Agency at Keams Canyon—AC 602 738-2225—through Holbrook, Arizona. The Snake Dance is held on one of the three Hopi mesas. (See map.)

In addition to the private dances and ceremonials there are many public celebrations where there are no restrictions on photography or tape recordings. The three major events are:

INTER-TRIBAL CEREMONIAL presented in Gallup, New Mexico for four days. This year the event will be held

August 13, 14, 15 and 16. About 30 different Indian tribes participate in rodeos, parades, dances and other performances. Arts and crafts of the many tribes present are for sale. For information and tickets write to the Inter-Tribal Indian Ceremonial Association, Box 1029, Gallup, New Mexico 87301.

ALL-INDIAN POW WOW presented in Flagstaff, Arizona over the Fourth of July weekend. Indians from throughout the Southwest, principally Navajos, make this event their annual get-together where they not only sell their wares to tourists, but trade among themselves. Don't be impatient if the rodeos, parades and ceremonials do not always start on time. Everything is informal and everyone is just having a good time. For information write to the Chamber of Commerce, Flagstaff, Arizona 86001.

INDIAN DAY presented in Bluff, Utah June 20th. Located on Utah State Route 47 just north of the Arizona border, Bluff is a trading center for Navajo and Ute Indians. Visitors will also find this is spectacular country. For information write to Gene Foushee, Recapture Lodge, Bluff, Utah 84512.

While some events are scheduled ahead of time, many are last minute affairs. Check with tribal offices or chambers of commerce when in the area. For other dances and dates send a self-addressed stamped envelope to Desert Magazine, Indian Affairs, Palm Desert, Calif. 92260.

Keet Seel, Chaco Canyon and an area near Kayenta, Arizona.

(Some archeologists say an even earlier civilization in the Southwest than the pueblo-building *Anasazi* was the *Hobokam* communities of southern Arizona where an extensive system of irrigated canals was believed to have been developed as early as 700 A.D. *Hobokam* is a Pima Indian word for "those who have vanished." The Pimas and Papagos, thought to be direct descendants of the *Hobokams*, live on reservations near Phoenix and Tucson.)

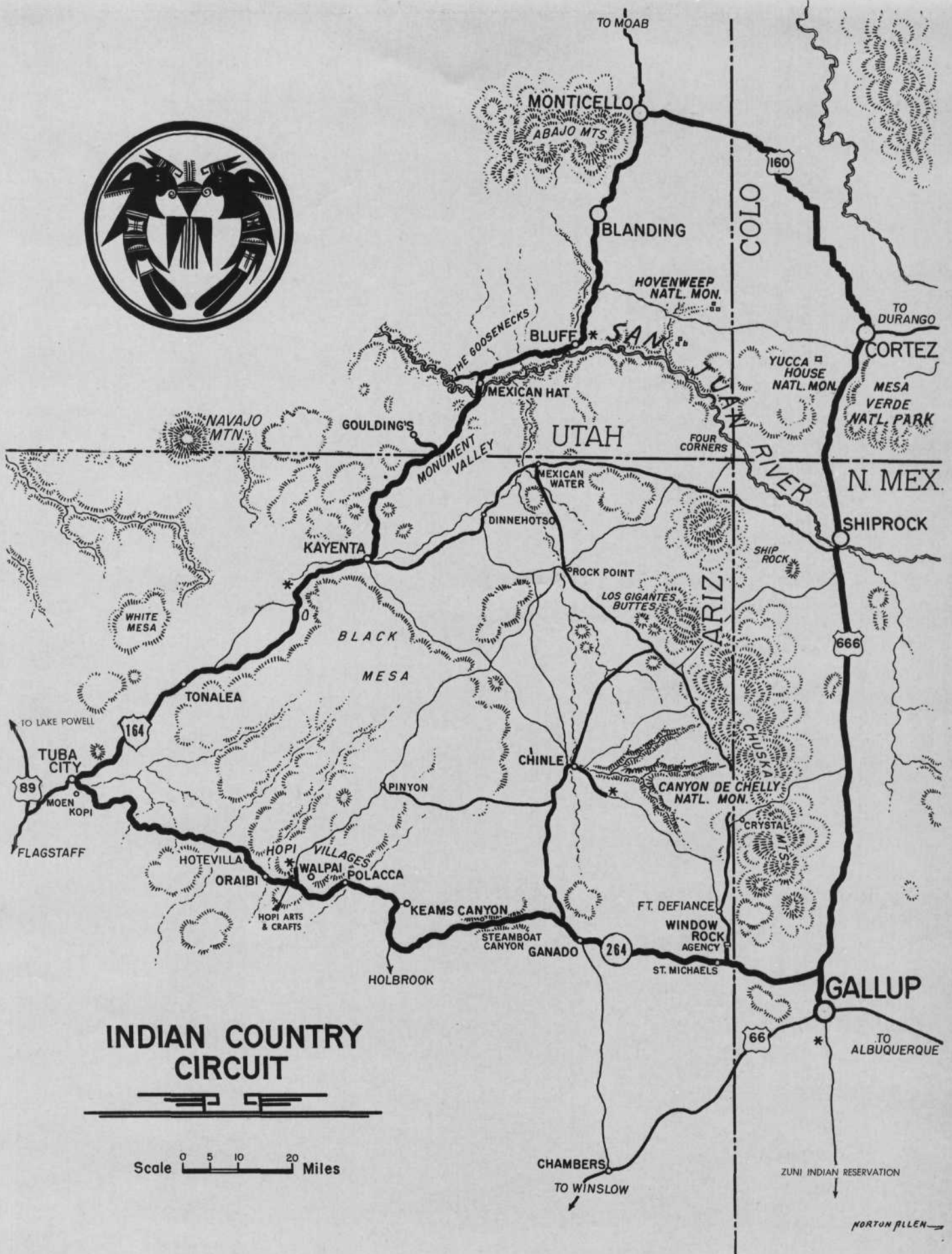
Descendants of the *Anasazi* Cliff Dwellers are today's Pueblo Indians, the majority of whom live in 18 villages on or around their mesas in New Mexico and Arizona. The best known are the Zuni villages south of Gallup, New Mexico (see other article in this issue); Acoma, known as the "Sky City," between Albuquerque and Grants, New Mexico on U.S. 40, which vies with the Hopi pueblo of Oraibi as being the oldest continuously inhabited community in the United States and is known for its fine pottery, and the Hopi mesas surrounded by the Navajo Reservation. Acoma and Oraibi are said to have been active communities for more than 1000 years.

The Hopi Indians—Hopi is a contraction of *Hopi-tub*, their tribal name which means "the peaceful ones"—had been living on their sacred land for centuries when they were invaded by nomadic hunters from the north who originally came over the Bering Strait and then migrated south.

(Although white-man archeologists and anthropologists believe the first immigrants came across the Bering Strait or sailed across the southern Pacific Ocean to South America, Indian legends say they came from beneath the earth's surface through reeds or holes. A fascinating book on these legends is Frank Water's *Book of the Hopi*.)

These nomadic hunters—who called themselves *Dine*, meaning "the people" spoke Athabascan which was a foreign tongue to the Shoshonean speaking Hopi Indians. The invaders at first raided the Pueblo villages and took women and children captives—and from these captives they learned the art of weaving, basket making and other crafts which they adapted to their own individual skills.

As their numbers increased, they grad-





gave the Indians their own form of Christian religion, wide-spread disease, a foreign political system, renamed their villages and pitted one Indian tribe against another.

On the positive side of the ledger, the invasion brought iron tools, fruit trees, new domestic plants, silver, cattle, sheep and horses which completely changed the lives of the Indians.

From the Spaniards—and later the Mexicans—the Indians learned the art of silversmith which they gradually adapted to their own skills and which has resulted in today's beautiful Indian jewelry. Wool from the sheep replaced cotton in their weaving, resulting in the colorful Navajo blankets.

The final invasion of their country which had a direct result on the modern-day Indian artisans was that of the white settlers from the eastern United States. Although the majority of the "pale faces" were only intent on taking land from the Indians, a small minority set-

ually turned from hunting and raiding to agriculture and settled in small communities near their fields. Today they are called Navajos from the Tewa word *Navahu* meaning "cultivated fields." As their life became more sedentary they developed their newly acquired skills of weaving cotton and fibers, sand painting, bead making and farming.

Although the Indians of the Southwest during the early 1500s grew basic crops and traded with the Indians of the Pacific Coast for shells which they used with turquoise for their beads, it took still another invasion to introduce horses, sheep and silver.

Searching for gold, loot and "lost souls" a paradoxical combination of Spanish military and Catholic missionaries first marched into Indian Country from Mexico City in 1539. Returning to Mexico City and the first abortive invasion, Fray Marcos de Niza reported he had seen the legendary gold-covered Seven Cities of Cibola.

As a result of his erroneous report the Spaniards launched a full-scale invasion. Although not ousting them from their lands, the conquering Spaniards enslaved the Indians, demanding tribute in the form of labor, food, crops and—a new word—taxation.

On the negative side of the ledger they



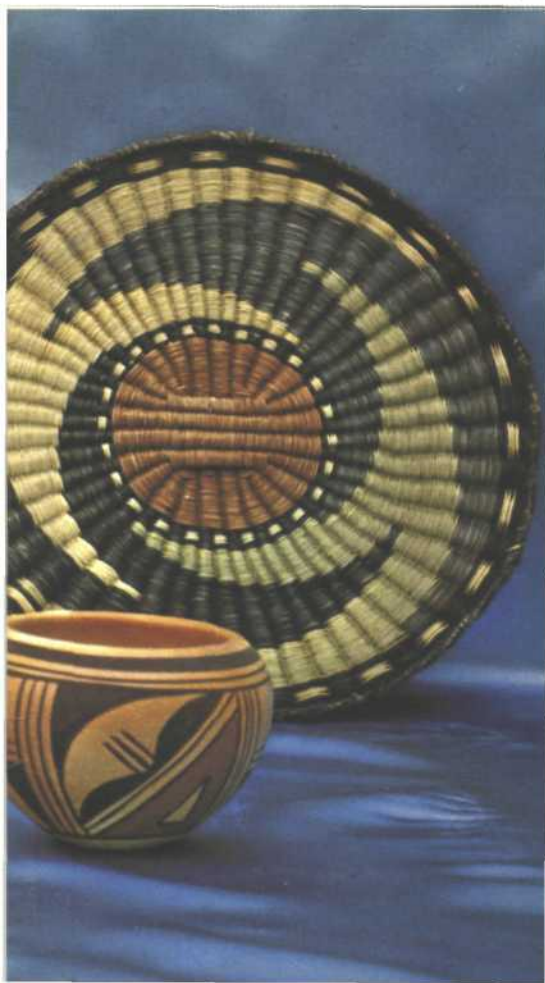
Arizona's Hopi Indians, most of whom live on a reservation completely surrounded by their Kachina dolls, basketry, pottery and overlay jewelry. Navajo Indians use large necklaces (photos above). Small figurine at bottom of photo (above)

tled among the native Americans and established trading posts.

The original trading posts were similar to the country store in which the proprietor traded coffee, flour and other staples for the products of the Indians. The traders, in turn, sold the Indian products to other Indians and to the eastern market.

The authentic trading posts throughout the Southwest today operate on the same basic principal as those established more than 100 years ago. The word "authentic" is used here since in recent years some of the older trading posts and many new ones are offering imitation Indian products which are mass-produced in areas other than Indian Country.

However, the fact a trading post has imitation products does not mean they do not also carry authentic Indian jewelry, blankets, beads, baskets, etc. Like any business, they offer what the public demands.



by their Navajo neighbors, are famous for pieces of turquoise in their squash blossom (right) is a Zuni Indian fetish.

It is well to remember, however, the words "Indian design" or "Indian style" and "silver metal" and "turquoise blue stone" do not necessarily mean they are sterling silver or genuine turquoise — which authentic Indian jewelry always contains. Established traders will readily show you the difference.

In recent years many Indian tribes have established their own guild craft shops on their reservations where they sell the hand-made products of their members. You can also purchase some products from families, such as kachina dolls, pottery and baskets on the Hopi mesas. In addition to displays where you can learn to recognize true Indian crafts, majority of the many museums throughout the Southwest also have Indian stores.

Remember you are not buying just a product, but rather you are paying for time and skill so do not judge the value of a product by the value of the materials, just as you would not judge the price of a painting by the cost of the paint. For example, it takes about 350 hours' work for a Navajo weaver to make a three-foot by five-foot rug of average quality!

As stated previously there are more than 40 tribes throughout the Indian Country of the Southwest, all of which

have their own individually styled arts and crafts. It is impossible to cover all of the areas in one trip so it is best to plan circular tours. One of the most interesting is through the Navajo, Zuni and Hopi country.

The trip starts in Flagstaff, Arizona where there are several good trading posts and the Museum of Northern Arizona which is a "must" for anyone interested in the culture of the Southwest Indians. After visiting the museum, you will have a comprehensive view of the areas you will visit on the "Indian Country Circuit."

From Flagstaff take Highway 89 to Tuba City and Highway 164 (also called Navajo 1) which winds through the spectacular Monument Valley area. Along this entire route there are numerous side trips. An excellent map of the area published by the Navajos can be obtained at any of the trading posts.

The circuit continues to Monticello and then south on Highway 160 to Cortez and the Mesa Verde National Park where daily tours through the giant prehistoric pueblo villages are conducted. From Cortez the road continues south to Gallup where there are excellent trading posts and the home of the famous Inter-Tribal Ceremonial. (See other article in this issue.)

Continued on Page 38

A GREAT CHANGE has come to the land of the Zunis in the last few years. Only a short time ago, the pueblo used to be a sleepy little place in which a few Indians lived very much the way they lived centuries ago, but this is no longer the case. Today, Zuni pueblo has come to life. The governor of the reservation, Robert E. Lewis, a short, wiry man of middle age, directs the affairs of his people like a general.

"We're making gigantic strides forward," he said, in his Zuni, New Mexico office. "With the help of the 'War on Poverty' programs, we have started our Zuni Craftsmen Co-Operative Association. We are building new homes and are trying to attract industry. We are also remodeling our old church which was established when the Spaniards came here in the 16th century. We'll even rebuild Hawikuh to attract the tourists."

Hawikuh pueblo, located about 14 miles from Zuni, was first seen by the Spaniards in 1540 when an expedition, sent by the Spanish Viceroy Antonio de Mandoza in Mexico City, was looking for the fabled Seven Golden Cities of Cibola.

The expedition was led by Estevanico the Black, who failed to convince the Zunis he was a god as he had other tribes. He was killed and his body thrown over the cliff. Fray Marcos de Niza was

in the same expedition, but far behind Estevanico and never saw Hawikuh. Despite this he returned to Mexico City and reported the pueblo village was filled with gold. Other expeditions proved the good father was over imaginative, to say the least.

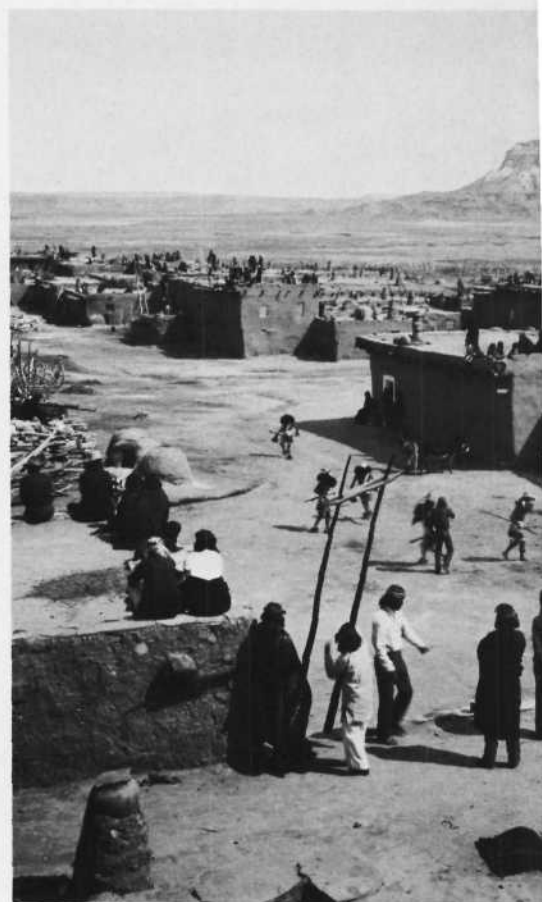
Only ruins are left of Hawikuh, but Lewis intends to rebuild it and produce a pageant centering around the Spanish quest for gold.

Zuni pueblo lies about 39 miles south of Gallup, New Mexico and can be reached from three sides on excellent paved roads. Its population is about 4000 and perhaps 1000 more Zunis live in other settlements of the reservation which comprises about 440,000 acres on the banks of the Zuni River.

The Zunis are different from all other Indians in background and language. According to ancient legends, they came into existence when two different groups met in the area about 800 or 900 years ago and decided to merge.

The traveler approaching Zuni from

LAND of



the west gets the best view of the ancient pueblo. Corn Mountain, called Taaiyalone by the Zunis, forms a beautiful backdrop to the picturesque houses, a high table land not unlike the famous mesas of the Hopi country, about 1000 feet high above the Zuni River. It is to Taaiyalone the Zunis sent their women and children whenever enemies invaded the country.

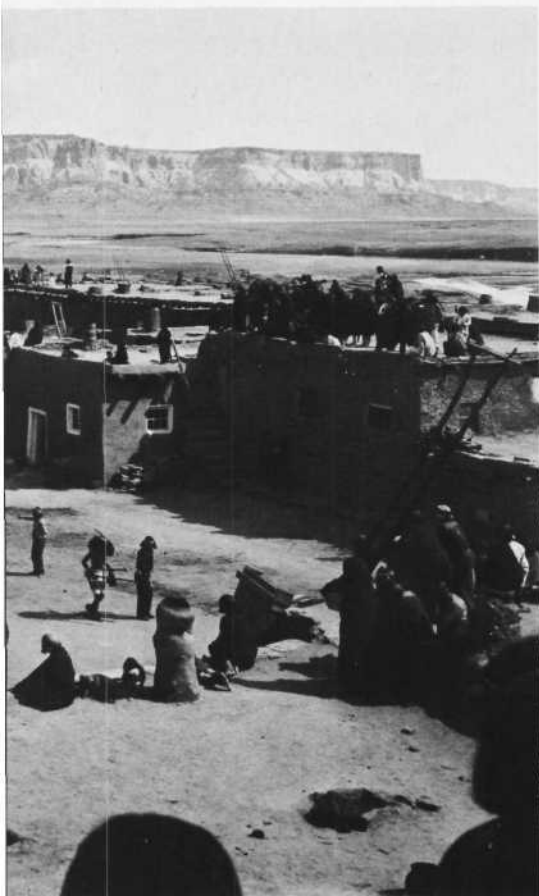
The old part of the pueblo rises on a little hill but has now spilled over into the adjacent countryside. The houses are made of adobe or of irregularly shaped stones plastered with adobe. Formerly,

An early photo of a Zuni Pueblo (above) from the Ben Wittick Collection, Santa Fe. Villages look much the same today. Corn Mountain is in background. Even though today Zuni Indians have many modern appliances, some baking is still done in adobe ovens.



the ZUNIS

by Peter Odens



the houses were several stories high and the roofs served as a patio for recreation. Living quarters, in those days, were in the upper stories which could be reached only by ladders. At night, the ladders were drawn up to provide safety from invaders. Even today, the ladders are still very much in evidence, although most multi-story buildings have crumbled into dust and have been replaced with single-story structures. Houses had to be so large because the Zuni home is based on matrilineal residence. A young Zuni who gets married moves into the home of his wife's mother who is the owner of the house.

Jack and Quanita Kalestewa are excellent silversmiths and today make the modern jewelry of the Zuni Indians under a federally funded Zuni Craftsmen Cooperative Association program. They work in the modern workshop on the Zuni Reservation, south of Gallup, New Mexico.

The Zunis are very friendly. Standing before one of the old pueblo-type houses, one may suddenly be addressed by a child.

"Take my picture," a dark-skinned, bright-eyed youngster chirps.

"Look," another may say, "my dog." He may smile and ask to be photographed. Unlike some other Indian youngsters, Zuni children do not expect to be paid for posing for tourists. They just want to be friendly.

The Zunis were never very responsive to Christian missionaries and to this day have preserved their ancient rites. Visitors are not allowed to take photographs of these rites but are allowed to attend most of them. The Zuni religion is based on the belief that everything in nature has a soul. Man, Zunis feel, must live in harmony with nature.

Picturesque little ovens throughout the village form a special attraction for the visitors. They were originally brought to the Zuni country by the Spaniards and are used constantly today to bake sourdough bread. But what has made the Zunis famous throughout the country is

the fine work they turn out as silversmiths.

Although the Zunis had worked in copper and brass for many years, it was not until 1872 they learned the art of silversmithing from the Navajos and around 1890 they started adding turquoise. Since then they have made tremendous strides in the art and developed their own distinctive styles.

Zuni craftsmen favor turquoise, black jet, coral and white and pink shells in their modern jewelry. They have developed the "channel" and are noted for their mosaics and overlays.

The Zunis are also noted for their fetishes, a carving which usually resembles an animal or bird. A spirit is believed to dwell in the object which can give assistance, in the form of supernatural power, to its owner. The most common on the market are the ones used for hunting, to which an arrowhead is usually attached.

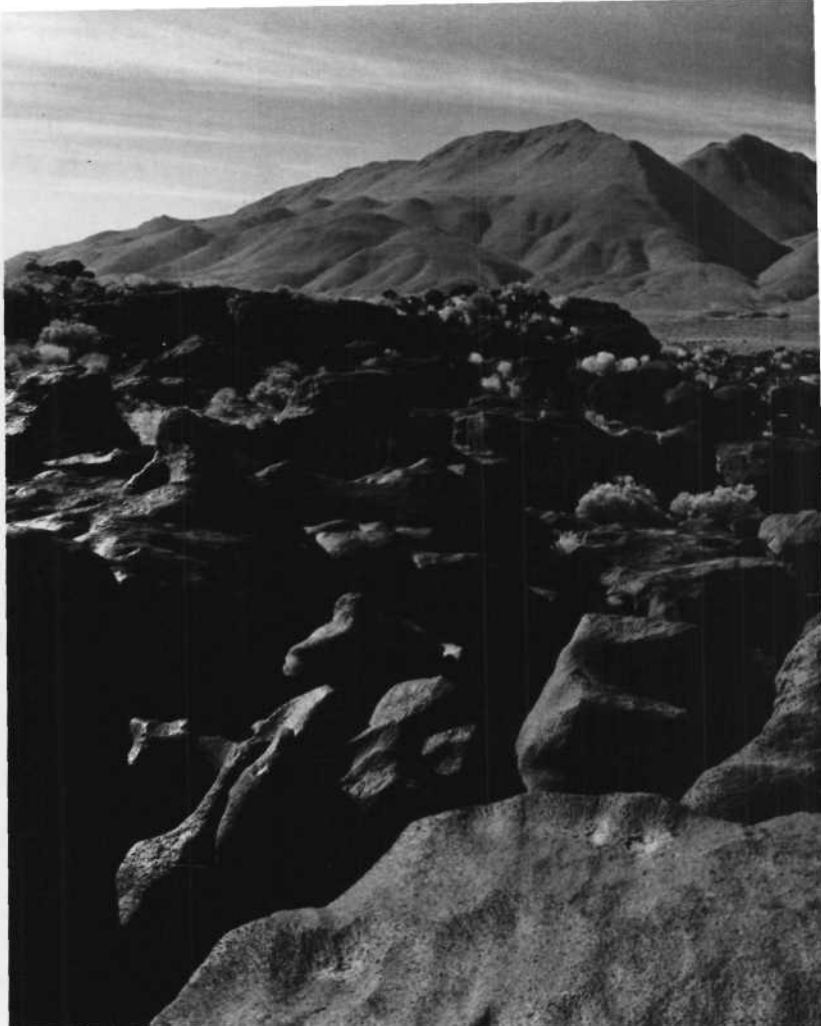
"We have some 400 families here who are engaged in silversmithing," Lewis said. "Our jewelry has been made for centuries and now we have bridged the gap—the way it is made today and the items we produce are in great demand—and Zuni jewelry is as modern as tomorrow."

And so are the people of the land of the Zunis. □



FOSSIL FALLS

by George Hafer



WHEN TRAVELING California Highway 395 through the northern reaches of the Mojave Desert, one is struck by the vast foreboding topography of the area. Heading north from Randsburg the highway penetrates the El Paso Mountains and enters Indian Wells Valley, the site of Ridgecrest, China Lake and Inyokern.

The banded, sun-baked Argus Mountain Range to the east and Coso Mountain Range to the north and the massive Sierra Nevadas to the west are disquieting to the solitary traveler. Vast expanses of creosote bush, salt bush, winter fat and hop sage offer no encouragement. It is difficult to believe that this seemingly sterile area once abounded with lush vegetation, rushing fresh water streams and lakes shimmering in the sunlight.

Scientists theorize the end of the most recent glacial period occurred about 4000 years ago. During this Wisconsin period water was much more abundant with lakes and streams being fed by the melting glaciers high up in the Sierra Nevada Mountains.

Owens Lake was filled to an estimated depth of 220 feet. Its overflow traveled

southward to fill China Lake in Indian Wells Valley and from there onwards through Salt Wells Valley to Searles Basin. Here another lake was formed that covered nearly all of Searles Basin and backed up through Salt Wells Valley into Indian Wells Valley.

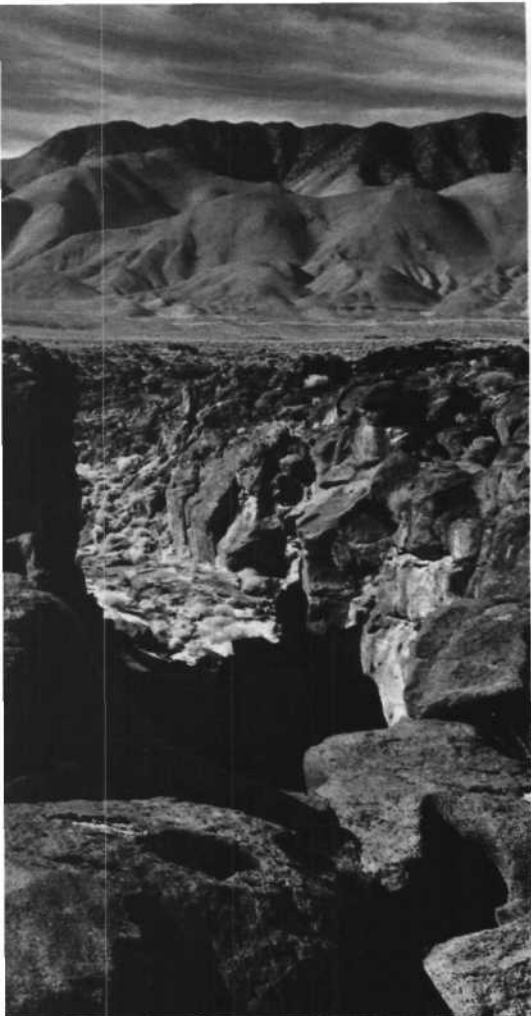
The overflow from Searles Lake coursed eastward then northward to fill Panamint Lake, a body of water 60 miles long and 900 feet deep!

The glacial waters finally came to rest in a massive trough east of Panamint Lake to form Lake Manley, estimated to have been 90 miles long and 600 feet deep. This lake no longer exists but the trough is still there. It is called Death Valley.

The salt-encrusted dry lake beds of these ancient bodies of water are well known to the desert traveler. However, not many are familiar with the evidence of the connecting streams. One of the most striking areas along the ancient waterway is Fossil Falls.

Near the historic stagestop of Little Lake, Highway 395 winds around the extremes of massive lava flows that originated in the Coso Mountains. The





sheer basaltic cliffs from the eastern and northern border of a small basin containing a modest body of spring-fed water is also called Little Lake. It is over these northern basaltic cliffs that the overflow waters plunged from Owens Lake.

When one arrives at the top of Fossil Falls he has the distinct impression he has seen the place before — in a nightmare.

Upon cooling, the large mass of molten lava shrank and cracked to form many narrow and deep fissures. These cracks were eroded by the Owens Lake overflow to form a weird, distorted landscape. The normally jagged and pocked basalt was worn smooth and lustrous by the water-carried abrasives.

There are many deep circular holes in the solid basalt formed by twirling rocks caught in rotating water currents and grinding out deepening impressions. One such circular chimney reached a depth of about 15 feet before the stones ground their way through the wall and back to the mainstream channel.

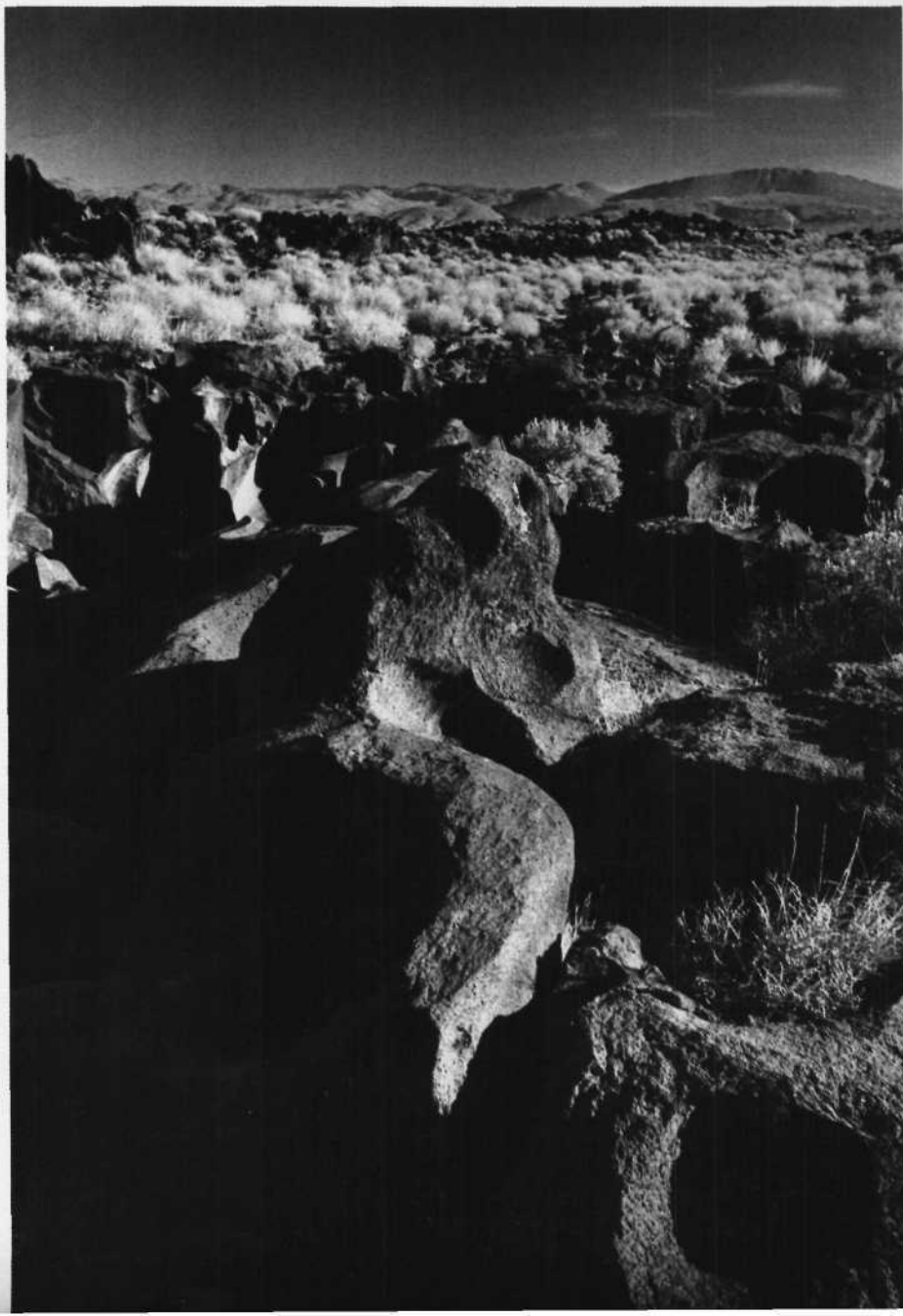
In this first stage the water dropped approximately 40 feet as it gushed out of the deeply eroded cracks in the basalt to plummet over a sheer cliff nearly 20 feet in height and then cataract over huge chunks of basalt to finally flood into Little Lake Basin. The water lost an elevation of close to 100 feet in a distance of some 200 yards.

This little known fossil feature of

Continued on Page 33



The top of the falls (above) is an awesome setting. Southern portion of the High Sierra Mountains form the western border of the valley. Cascading water dropped some 40 feet (left) through the surface lava flow. The upper stream bed (right) flowed along a 50-foot wide depression creating these wierd formations.



Hidden Gold of the Piautes

by John Townley

ANYONE WHO reads western history is familiar with the story of the Indian who leads a white prospector to a fabulous deposit of glittering gold ore. This old chestnut has been repeated so many times it usually is treated at best as legendary, or ignored by the scholarly researcher. However, there is at least one example of such a story being well documented. The locality is Delamar, Nevada, one of the best preserved ghost towns in the Great Basin, where over

\$10,000,000 in gold was produced prior to World War I.

In 1902, the Delamar mine had been paying dividends for almost eight years. Many of the larger stockholders were Salt Lake City residents and news of the district was often printed in local newspapers. On April 27, 1902 the *Salt Lake Tribune* carried an illustrated article on an alleged discovery of the deposit several decades earlier than the official location date of 1890.

According to the story, the discovery of the Delamar lode was almost made by some white prospectors in 1877, rather than 1890. Further, the deposit had been known to the Paiutes much earlier and they vigorously intended to keep it unknown to the whites. The author began, "There is scarcely any doubt that the great gold mines of De La Mar were first discovered by a roving band of Paiute Indians many years before the foot of a white man trod the ground over the yellow treasure. It was a fatal find for the red men, the first victim being the Indian who betrayed the secret to the whites. He was a son of old Tickaboo, an aged savage reputed to be 104 years old who still cumpers the sidewalks of Pioche.

"In the year 1877, Chitowich, the son, came in from one of his periodical hunting trips with something more substantial than a robust appetite and a consuming thirst. He brought with him some fine looking samples of quartz alive with free gold."

Two Pioche miners saw the samples and had them assayed. The results were astonishing; over \$1300 in gold to the ton. They immediately began a campaign to force Chitowich to show them the location of his find. A couple of weeks effort, plus the promise of free room and board for a lifetime, caused Chitowich to reflect on the tribal taboo concerning the location of the outcroppings. The next morning, the miners, together with Chitowich and his son George, left Pioche and headed south along the west side of the Meadow Valley range. The second night out, they were camped at Cliff Springs when the two prospectors noticed bright flashes from signal fires



The "glory hole" of Delamar was the hiding place of more than \$10,000,000 in high-grade gold ore. Below, the town and mill operated by the Delamar Company.



Brick in this power station was brought overland from Salt Lake City by wagon. Delamar was one of the first mining districts to have electricity. The equipment was sold as scrap during World War II.

appearing at intervals on the mountains to their east. Chitowich noticed them as well and began to get uneasy. This was the first indication the whites had that the deposit was protected by the whole Paiute nation.

"Newton and Lamson (the miners) called to him that they would kill him if he did not stay where he was. For a time this threat held him in check, but as the shouts of the tribesmen seemed to come nearer he threw discretion to the winds and made a dash for the chaparral. Instantly, two guns rang out. Even in the dense darkness, the aim of one was so good that a charge of shot found its mark and brought a cry of pain from the treacherous guide, but it did not stop his flight.

"Determined at all costs to keep the Indian from reaching his own people and bringing the whole tribe down upon them, Newton and Lamson sprang up and dashed away in pursuit. The wounded man was not able to make very good time, and was overtaken within a few hundred feet. This time the frontiersmen did not miss. Leaving the body where it had been dispatched, the white men returned to their camp and thought themselves of the small Indian

boy who had been in bed with his father. No trace of him was to be found. His escape made their situation as bad as it had been before. There was nothing to do but pull stakes and get out of the dangerous neighborhood."

The eleven-year-old son of Chitowich reached his family within several days and related to them the facts of his father's death at the hands of the miners. An older son, Bill, went into isolation for a week, then gathered about him a party of other young Paiute men. They began one of the few Paiute outbreaks and had all of Lincoln County, Nevada paralyzed for three months. Finally, the residents of Pioche and Hiko organized search parties and kept in the saddle for weeks at a time. However, they could not locate the small and highly mobile group of Paiutes. In desperation, they decided on mass punishment and told the large Paiute colony in the Pahrnagat Valley that either they produced Bill, or faced extinction.

In a few hours the bloodthirsty Bill was brought in on a pony, bound hand and foot. The Indians said that they had not seen George (the younger son) but reassured the whites that they would

Continued on Page 34



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U.S. 66—Across from Santa Fe Depot

Desert Hot Rod

by K. L. Boynton

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GOOD FOR top billing in scientific circles practically anywhere in the world, is that low-slung citizen of the Southwest, the desert iguana, or crested lizard. This is the fellow you see hotfooting it over the scorching Mojave, Colorado, Sonoran and Baja California deserts, long after his peers among reptiles have been forced to retire to cool burrows for the day.

Known in scientific terms as *Dipsosaurus dorsalis* (dry-lizard with-back-crest) this stout-bodied lizard with the small blunt head and long tail has the honor of being the hottest reptile in North America. For, while the temperature of most reptiles when active is between 86 and 104 F, Dipso runs around normally with a high 111. In fact, he voluntarily tolerates a rise to 115, and since the lethal limit for his genus begins around 116, he operates just short of a very close margin of death.

Biologists, naturally enough, have to find out how this scaly character gets away with it. Norris's pioneer study provided the first details, and the hard work of several other zoologists contributed still more. In fact, a lot of peeking into Dips's insides and private life is still going on today, because more interesting facts keep turning up.

To begin with, all reptiles have a tough enough time coping with the daily extremes found in deserts, particularly those arid lands of North America because they cannot maintain a constant body temperature. Instead, their temperature conforms pretty much with that around them, rising in heat, dropping in cold.

Lacking the built-in heat-making machinery found in birds and mammals, reptiles cannot warm themselves properly. Sluggish and helpless in the early morning chill, they must sun themselves and absorb heat from warm soil and rocks

before their temperature rises high enough for them to move about actively. Conversely, lacking sweat glands and other cooling systems for getting rid of heat effectively, they must hole up when the heat they have taken aboard sends their temperature to a dangerous level.

In a desert summer day when the thermometer commonly hits 110 degrees there is actually little time when conditions are just right for optimum lizard living. Then, much of the active time above ground is spent seeking cooler spots here and there as the morning's heat picks up, so as to stretch out the period for feeding and indulging in clan life as long as possible. But thanks to certain key adaptations, this desert iguana or crested lizard is able to prolong his stay above ground, thus exploiting his desert environment to the fullest. In doing so, he becomes a first class example of how one animal species can enter a habitat normally off bounds for its kind, establish itself and flourish therein.

It would be nice to report that Dipso owes his success to being on the job earliest in the morning, but the truth of the matter is that he is last of all lizards to start work. *Uma*, the fringe-toed lizard, and other small ones have long been up, and in fact are becoming so hot in the rising sun they will soon have to duck into their holes for the day.

Unplugging his burrow, Dipso presents a still sluggish face to the world, and is in need of further warming. Tilting this way and that to catch the sun's most direct rays, he's soon ready for business. An excellent climber with his sharp claws and long balancing tail, he hies up into a creosote bush for breakfast.

Dipso is truly a creosote bush kid at heart. Not only does he consider its buds, blossoms and leaves exceedingly tasty, but his very appearance also shows his clan's long evolutionary association with the plant. His hide, patterned in a series of black and brown streaks and spots on a pinkish or white background, looks very much like creosote twigs against sand. In fact, when he's parked on a branch, it is very hard to see which is bush and which is lizard, a most desirable situation when hawks, with lizards for breakfast on their minds, are doing the looking.

Besides second story eating, Dipso climbs up into these bushes when the ground becomes too hot, and thus escapes surface heat. This is an old desert iguana behavior trick developed down through the ages, and is an important reason why Dipso can stay out so long in a summer's day.

Sitting in the cooler air and in partial shade he still has another card to play in his deadly game with the desert. This is the added protection provided by a radiation shield built into his body in the form of a black lining to his abdominal cavity. Certain other lizards (chuckwallas, side-blotched, collared, for example) also have this lining. Dipso's shield is especially effective, as Porter and Gates showed in their fine study of desert animals and solar radiation, for it keeps out at least twice as much ultra violet light which, if it entered the body, would damage internal organs and cause reproductive upset. So well protected, Dipso can withstand direct sunlight better and much longer.

Dipso has still another ace: his ability to change color. As the sun becomes hotter and brighter, his markings fade. His skin, becoming much lighter in color, acts as a reflector now, turning the hot rays aside, helping to prolong his stay above ground. But in spite of all these aids, he's still getting warmer all the time, and the last trump has to be played.

This is his surprising tolerance of a very high body temperature. The very tissues of his body can stand excessive heat, as Schmidt-Nielsen found in his cellular study of this animal, and so Dipso, allowing his temperature to climb far beyond that which kills other lizards, can stretch his above ground activity period out for perhaps three hours.

At last even he has to give up, retreating to his burrow down among the roots of a creosote bush, there to stay until late afternoon when another feeding session can take place. This one, too, is short, for the great desert cools rapidly. Then he spends the night in his dark burrow with the entrance plugged against marauding snakes.

What's the alarm clock that gets him up? Not light, for the door is firmly closed, and light cannot penetrate more than about 3-5 cm. through sand. And how is it that this lizard, emerging from his night-chilled burrow needs so little time to become warm enough for activity?

Details on the alarm clock are still lacking, but it is suspected that as in other animals, Dipso must have a kind of interior timing device or biological clock that informs him it's time to get up. Also as zoologists McGinnis and Dickson found in their interesting behavior-temperature study of these lizards, Dipso is by no means as lazy as previously thought. He's up a good hour before he unplugs his door, moving toward the entrance, an area already beginning to heat up with the sun. Warmed by this, and by his own exercise, he steps up his metabolism, raising his waking-up temperature of about 88F to at least 95F.

When at last he opens his door and steps out into the sunshine, a great deal less time is required to bring his temperature up another five or six degrees or so to his minimum activity needs of about 101. This head start is a very useful adaptation to desert life, for it is while he is within the safety of his burrow he gets his engine revved up for business topside.

Speed in getting over a hot terrain is also a big advantage in desert living, and Dipso is equipped leg and musclewise for it. Tail high, toes flexed, he conducts his affairs on the run. Stopping to rest a moment, he shoves and kicks aside the surface sand, pressing his belly down into the cooler layers.

Naturally enough, Dipso does not lead a lonesome life, there being considerable society among his kind since these lizards congregate around the food supply. Encounters among them as they go about their daily business get off to a start in a kind of ballet consisting of stance taking, posturing done by all parties, and in some cases athletic pushups by rapidly raising and lowering the front part of their bodies.

Zoologist Carpenter, observing these strange goings on, suspected they must mean something, since behavior plays a very large part in animal species development and differentiation. He set about finding out what.

Catching a batch of these lizards he marked them with different paint designs for identification, and then put them together in a large outdoor sandy enclosure containing logs and cinder blocks for shade. Sitting comfortably close by under a canopy, he watched proceedings.

Practically the very first thing that occurred was the deciding of who was going to be boss, for it seems that you cannot put a group of individuals together of any kind without this question coming up right away. While in human society there may be subtle maneuvering, the lizard tribe's method is more direct and in almost no time at all everybody knows where he is.

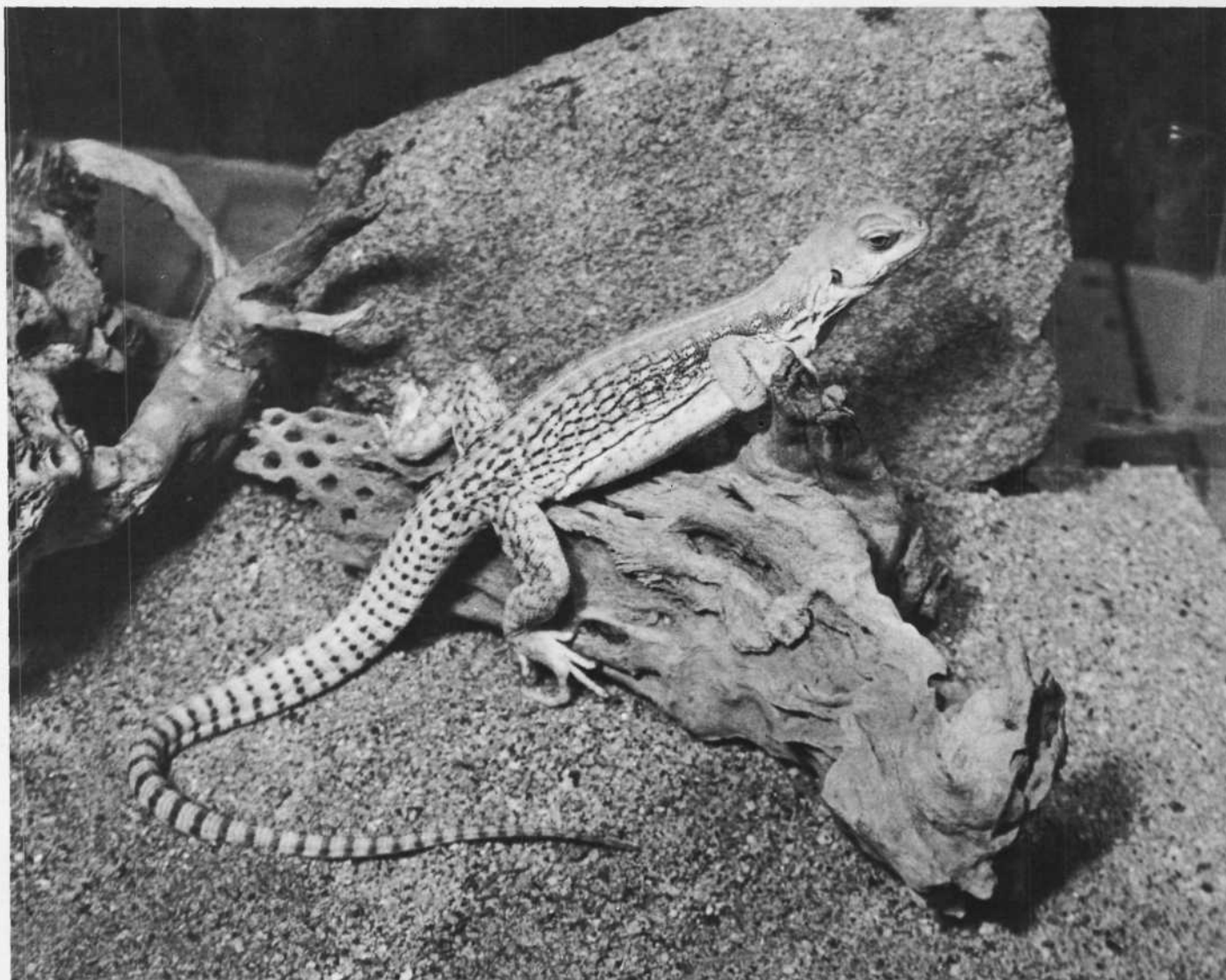
One big male, painted with orange speckles, demonstrated how it is done. Immediately applying for the job of head lizard, he eliminated the rank and file by chasing them one by one into retreat. After the weaklings, he turned his attention to two possible contenders, inviting each to question his qualifications. Lowering his head and extending his dewlap, he stiffened his legs, arched his body and extended his tail full length, turning to give his opponent a full side view. He looked very much larger, and very, very tough. Facing the other candidate, he began a series of pushups, raising and lowering his head and shoulders in a distinct rhythm of movement.

This was enough for the first one who took off speedily,

Orange Speckles pursuing him to impress the matter upon him more firmly. But the second contender did not run, flinging the challenge back in return. Whereupon the two lizards sidled about, stiff-legged, tails extended, doing their ritualistic timed pushups. A fight then ensued, with tails used as weapons, each lizard trying to deliver the mightiest wallop—sometimes hard enough to be heard twenty feet away. Orange Speckles emerged triumphant, chasing the loser until cornered he flattened out in submission, eyes closed, legs extended.

Eggs are laid late in June or early July underground, usually three to eight in a clutch, the youngsters appearing on the scene through August. By fall they are the largest single age group, but a lot of them do not make it through the winter, due to their digging too shallow a hibernation burrow. Surprisingly the youngsters grow very slowly. The young ones among Carpenter's batch studied in the spring were left overs from the previous summer's hatching, and yet were still only about half grown. Not that this bothered them, for the small fry are exceedingly cocky, challenging each other by standing high on their legs, dewlap extended, and then stalking away in a very tough manner indeed.

This, as can be clearly seen, is very good practice for getting off on the right foot when at last they make their debut into the elite society: the hottest reptiles in North America. □





Glacial waters from Fossil Falls cataracted over and around high basaltic boulders to flood out into Little Lake Basin.

FOSSIL FALLS

Continued from Page 27

California's desert landscape is readily accessible over well-graded dirt roads. Two and one half miles north of Little Lake on Highway 395 turn to the east on the crossroad that skirts the southern reaches of Red Mountain, a sizeable volcanic cinder cone. This road goes past the southern entrance to the Little Lake Cinder Mine to a point six-tenths of a mile from Highway 395 where another dirt road comes in at about 150 degrees angle from the right.

Take this road to the right for three-tenths of a mile to a road that merges at a 150 degree angle from the left. Follow this road to the left for about three-tenths of a mile to roads end. From this point Fossil Falls is but a seven minute hike on a well marked foot trail through the lava fields.

Fossil Falls is not mentioned on many maps. Perhaps that is why the area is surprisingly clean. This is not to say that it couldn't be improved. There are signs of contemporary civilization, beer cans, etc., that have been discarded by moderns with a primitive mentality. Of course, what litter is present would be cleaned out by the next overflow from Owens Lake. However, this happening in the near future does not appear likely. □

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HIDDEN GOLD OF THE PAUTES

Continued from Page 29

catch him before long and kill him themselves. With Bill in their midst, closely guarded, the punitive expedition returned to Hiko.

"There was no time wasted in taking testimony. The court simply suspended the rules, declared the prisoner guilty by a unanimous vote of the house, then suspended the prisoner. A hempen noose, a very popular piece of neckwear in Nevada in those days, was fitted about his neck. He was stood on a wagon and hauled under the pulley arm over the door of a barn. The loose end of the rope was firmly fixed to this arm and the wagon pulled from under Indian Bill. Bill did not stand on ceremony, or anything else, but died as almost any other well regulated Indian would have died under the circumstances. No one ever saw Indian George again so it was assumed by the whites that the head men had kept their promise and had disposed of him in some manner satisfactory to themselves, if not to George."

The newspaper account closed by saying that the Delamar lode was finally located in the fall of 1891 by a stockman from Hiko while hunting mustangs. Mr. Newton, one of the two prospectors who unsuccessfully brought Chitowich south of Pioche in 1877, was living in



Tintic, Utah in 1902 and was quoted as the source of the details.

The matter of an earlier location of the Delamar lode rested there for several months. I was gathering material for an historical study of the district and copied the article as an example of how mining legends can start. Later, while reading microfilm reproductions of Nevada newspapers, several letters appeared in the Nevada *Belmont Courier*. The author was Hartwig A. Cohen, writing to his good friend George Nicholl, deputy sheriff of Nye County. Cohen was a graduate of the Freiburg School of Mines in Germany and the first investor in the Delamar claims located by the Ferguson brothers of Hiko in 1890.

The Fergusons' had sent some samples which prompted him to inspect the property in person. He wrote back: "My trip south was productive of results better than I had anticipated. The mine which I invested in is in the Bennett Springs range, about 30 miles south of

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Store buildings in Hiko were the scene of Indian Bill's trial and execution.

samples was repeated around the Pioche area from 1877 until 1891 when Cohen arrived from Belmont. Cohen would have had no reason for repeating the story to his friends in Belmont except as an oddity of a new bonanza. The close similarity of Cohen's 1891 letter and the *Salt Lake Tribune* article of 1902 cannot be explained away as collusion since Cohen was retired in Europe by that date. The facts must stand as presented: Chitowich did bring samples to Pioche and his attempt to disclose the location was met with death. The story lingered on in Pioche and became part of their oral tradition.

It would be interesting to know how many unsubstantiated stories involving an Indian now passing the rounds among treasure hunters could be verified by a little research. At any rate, just because a legend seems improbable is no reason to drop it. Who knows, confirming data might be as close as your newspaper. □

Pioche, and about 35 miles east of Pahranagat Valley. The mine is not situated in any mining district, and the first tracks which were ever made into the canyon are now made by the locators.

"There is believed to be quite a history connected with this mine. It is supposed to be the same from which an Indian by the name of Bitter Sweet (translation of Chitowich) brought some samples about 25 years ago. Two prospectors managed to get the Indian to show them the mine; all three started out to where the mine was situated. When the party reached the neighborhood where the mine was supposed to be the Indian, for some reason, refused to go further, and the prospectors, suspecting treachery, shot the Indian."

Here is a disinterested verification of what has come to be regarded as a lost mine classic; the Indian who finds a mineralized outcrop, but for one reason or another is unable to lead others to the vicinity. The story of Chitowich and his



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CAMPING . . . THE EASY WAY

Continued from Page 17

All of the standard vacation activities are featured at the Oakland camp, with a few added attractions, such as arts and crafts for adults; folk, square, and social dancing; movies; all-day excursions (with box lunches supplied by the camp); and guest talent shows in the "Star Bowl" — a small amphitheater with a cheerful campfire between the stage and the audience.

Rates for Oakland's Feather River Family Camp are \$6.00 per day, including meals, for resident adults; and \$7.60 per day for non-resident adults. These rates are scaled down for children of various age brackets to no charge for babies under one year of age. A slightly higher fee is charged for the new all-wood cabins but, even so, these all-inclusive rates are extremely low when compared with modern-day resort prices.

San Francisco's Camp Mather is spread out on the rim of Tuolumne River gorge, at an elevation of 4520 feet. It can be reached on State Route 120, through Groveland, driving east. The area surrounding the camp embraces some of the most beautiful scenery in the world with panoramic views of Hetch Hetchy Valley, O'Shaughnessy Dam, and the deep Tuolumne River gorge. Rates for



lodging, meals, and all activities are \$8.50 per day for adult residents and \$10.00 for non-residents. Children's rates are lower, and there is no charge for tots under three years of age.

Berkeley operates two family recreation areas—the Echo Lake Camp and the Tuolumne Family Camp. Echo Lake Camp is located off Highway 50, approximately 6 miles south of South Lake Tahoe. The Tuolumne camp is near Yosemite National Park along State Route 120. This is high mountain country, in both locations, and the scenery is inspiring. Days are warm and nights are cool. Rates at both of the Berkeley camps, including three hearty meals per day, are \$6.50 for adult residents and \$7.75 for non-residents. As in all other camps the rates for children are based on their age levels.

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Most municipal camps build dams across streams to form the "old swimming hole" where youngsters can swim.

age levels. The lowest is \$1.50 per day for tots under two years of age, if they live in Stockton—\$2.00 per day otherwise.

Most of these camps are located along creeks, mountain streams, or lakes, that are stocked with fish by the State Department of Fish and Game. For instance, the Oakland resort is on Feather River's Spanish Creek which enjoys scheduled weekly plantings of trout during the summer months. At times, the fish are so abundant they have to line up and await their turn at the worm! Fishermen, in baiting their hooks are tempted to turn their backs in order to keep the trout from meeting them halfway! After all, it just isn't sporting to catch a fish in mid-air!

Fish yarns are fun and part of the sport; but the story of municipal family camps is a factual presentation of an important development in vacation opportunities that offers ideal settings for family affairs, where parents and children enjoy new family adventures together. Camping in Nature's quiet grandeur, with creature comforts, has become part of the summertime way of life for many refugees from the noise and hustle of city life. □

on the middle fork of the Tuolumne River in the Stanislaus National Forest, 16 miles east of Groveland along State Route 120, near Yosemite National Park. Here, easy walks and long or short hikes along numerous trails bring the vacationer the real beauty of the primitive mountain country. Again, the rate schedule is pleasingly low. The cost for lodging and meals is only \$6.50 per day for adult residents of San Jose, and \$7.75 per day for non-residents. Rates for children from one to five years of age are \$3.50 for residents and \$3.75 for out-of-town visitors.

Sacramento's Family Camp is a beautiful summer resort, located 84 miles east of the city in the El Dorado National Forest. It is along Highway 50, 14 miles west of Lake Tahoe, at an elevation of 6500 feet. Adult vacation rates are \$41.00 per week (including meals) for residents of Sacramento, and \$48.00 per week for others. These are scaled down to no charge for children under two years of age. Also, daily rates for visiting guests are very attractive.

Stockton's Silver Lake Camp is near Silver Lake in Amador County, 100 miles from Stockton on Kit Carson State Highway 88. It is 50 miles west of Lake Tahoe. This is a land of mountains, forests, streams, and lakes—a complete change of pace and scenery for those who are city-bound during the working year. All-inclusive rates for adult residents are \$7.25 per day—non-residents pay \$7.75 per day. Children's rates are based on their

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INDIAN COUNTRY

Continued from Page 23

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The village of Walpi on one of the three Hopi Mesas looks the same today as it did many years ago. Visitors may tour the village but cameras are not allowed.

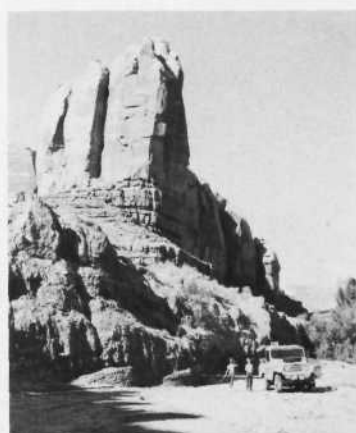
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Thirty miles west of Window Rock is Ganado where Lorenzo Hubbell founded one of the first trading posts in 1876 and which today is a national historic site with trips through the old post. Also in the area are the Ganado Mission and pre-historic ruins.

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From Ganado the highway continues to Keams Canyon, site of the United States government Hopi Agency. From Keams Canyon, the highway takes you to the three Hopi Mesas where the Hopis have lived for hundreds of years and where they make their famous kachina dolls, pottery and baskets. The end of the circuit is back to Moencopi and Tuba City, or south to Winslow.

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Travel Book *Southwest Indian Country*. The Automobile Club of Southern California also has an excellent map of the area called *Indian Country*. Other suggested books are *Southwestern Indian Arts and Crafts* and *Southwestern Indian Tribes*. (See Page Two of this issue.)

Depending upon your time, the suggested "Indian Country Circuit" can either be shortened or expanded. Regardless of whether you spend only a few days, a week or a month touring the Indian Country you will want to return to the mysterious and wonderful land of the Southwest. □

Camera Courtesy

If your children were playing in the front yard of your home and someone came by and suddenly took their photograph, or, if you were having a barbecue in your backyard and a candid cameraman raised his camera above the fence and shot a picture, what would you do? Probably call the police and demand the arrest of the varmint who invaded your privacy.

While visiting Indian Country, don't be a varmint or a candid camera fiend and invade the privacy of Indian families. To enjoy your visit and not embarrass either your family or the families of the residents, observe the rules of courtesy and always comply with reservation regulations. You will have an opportunity to take photographs of the places you visit in most reservations as long as you do not violate the laws.

When entering a small community or village leave your camera in the car and stop at the nearest official residence and inquire about the regulations. Each Pueblo village has its own rules. The chief or governor will tell you what you can photograph and also direct you to the homes where you can purchase Indian crafts.

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Woman's Viewpoint



THE OTHER day I was delighted to find a new idea using weathered desert wood. Ben Scoleri, Salt Lake City, is a bonsai (pronounced bone-sigh) artist. Some of his choicest miniature masterpieces use weathered wood combined with young plants rather than traditional dwarfed trees.

True bonsai is the oriental art of patiently shaping and stunting the growth of trees for decorative arrangements. Sometimes a one-foot tree, which ordinarily grows to a height of one-hundred feet, will be more than 50 years old. Arrangements, using artistic pieces of wood and fast growing plants, can have that marvelous oriental look of age, and yet take only a few months to grow.

My favorite bonsai wood arrangement reminds me of the scraggly trees along the coast of Carmel, California. An artistic piece of juniper (commonly known as red cedar) is fitted into a depression in a piece of hollowed sandstone. Each branch of the limb has been cleaned and rubbed to bring out the grain and two-toned color of the wood. Surprisingly, on the tips of the dead branches are clumps of lush green. Mr. Scoleri fastened a handful of sphagnum moss with fine wire to the tips of some branches. On the moss he placed some baby tears. If kept damp the plant roots easily and soon the sphagnum moss is covered with tiny bright green leaves. Baby tears is a creeping plant widely used as a houseplant and for rock gardens. The baby tears was

clipped close to the moss so it is a solid green mass. What an eye catcher!

Another choice bonsai arrangement used a bayberry in bloom twined around a twisted manzanita branch. The bayberry has been pruned so the blossoms and leaves show mostly at the tips of the branch. The combination of textures and color with the smooth reddish manzanita, the thorny green bayberry, and the delicate pink blossoms make this a stunning arrangement.

To make a quickie bonsai arrangement, the first thing needed is a container. Commercial bonsai pots of every shape are on the market. They are usually rather shallow and have a mat earth tone. Containers can be improvised from natural rock such as tuffa, lava, or travertine. If a piece of weathered wood is used it must be firmly cemented to the container.

Bonsai soil should not be rich; a pre-packaged soil mixed with sand is good. Bonsai artists prefer red clay soil that is put in layers according to coarseness: large granules on the bottom, fine granules on top. Be sure the drainage holes are covered with screen, broken pottery, or stones to keep the soil from washing through.

Choosing a plant for the bonsai arrangement is great fun. Fast growing plants such as boxwood, pyracantha, and ivy can be purchased from a florist. In wilderness areas, where it is legal to remove plants, watch for small sagebrush, conifer and maple plants. A whole new world will open up as you look for small trees and shrubs with unusual branch formations to use in bonsai arrangements.

Ben Scoleri found a tiny ponderosa pine with a trunk about as big as his finger. He carefully bent the tiny trunk behind a silvery gnarled sagebrush stump. The old wood stump looks as if it is the trunk of the ponderosa, giving it the appearance of an ancient bonsai.

Most plants selected for bonsai arrangement will need both their roots and foliage trimmed. Trim the long tap root but not the tiny roots at the base of the trunk. After the plant has been growing in the container for a month or longer it can be shaped. Use sharp pruning shears to cut unwanted growth and pliable copper wire to hold the branches in an artistic position.

Begin coiling the wire around the

branch holding the base of the plant tightly to the soil to keep it from being uprooted. The art of manipulating the growth is where the artistry comes in.

The soil at the base of bonsai arrangements may be covered with rocks, cinder, moss, or a creeping plant such as baby tears. A covering helps keep the moisture in as well as making the arrangement more attractive. A miniature pagoda, curved bridge, or figure add the final touch.

This summer watch for gnarled wood, tiny pebbles, miniature figures, plants, and moss to use in your quickie bonsai arrangements. Happy bonsai-ing.

Now for some more reader camp-out recipes. Of all the recipes sent in, my family likes this one best:

FIRELIGHT FONDUE

- 2 bars Swiss chocolate (3 oz. each)
- 1/2 cup cream
- 2 tbs. cognac (optional)
- 1 tsp. instant coffee (optional)
- 1/2 tsp. cinnamon
- 1 day-old angel food cake

Prepare a makeshift double boiler by heating a little water in a heavy pot over campfire coals. Set a large tin can (coffee or shortening) in the water. Melt chocolate bars in the tin can. (We tried several kinds of chocolate candy bars, but agree Swiss is best.) Stir in the cream, cognac, coffee, and cinnamon. To save time and space, these can be measured at home and put in a small bottle to add all at once. Tear angel food cake into pieces. Spear cake on the end of a suitable stick and dunk in the chocolate. Bananas, orange sections, and strawberries also are tasty. When the last drop of chocolate has been sopped up just dispose of the tin can and your dessert dishes are done.

Contributed by Karen Doyle—
Reno, Nevada

The September Woman's Viewpoint will be devoted to cooking with nature's wild herbs and berries. Do any of you have recipes to share? ☐

John A. Robinson

Letters to the Editor

Letters requesting answers must include stamped self-addressed envelope.



Erle Stanley Gardner . . .

Thank you so much for the beautiful tribute to the late Erle Stanley Gardner in the May issue. Your thoughtful expressions were greatly appreciated. I am sure even your choice of the picture would have pleased him very much.

JACQUE SPENCER,
Indio, California.

Editor's Note: To the many other readers who thanked us for the article on "Uncle Erle" we say thank you for sharing our feelings.

Industrial Progress . . .

I enjoyed the article on Tyrone, New Mexico in the February, 1966 issue. In March of this year I visited Tyrone and found that American industrial progress was in its usual full blossom. The Phelps-Dodge Company had bulldozed the town and replaced it with plant buildings. It is sad that such a landmark should be razed to erect such hideous tin buildings.

R. A. TIELS,
Oglesby, Illinois.

Hole Theory . . .

In answer to the letter from Mr. Cassell in the February issue regarding the mysterious holes in the rock boulders I think I might have the reason. Miners in the old days use to bet on who could drill a hole the fastest and deepest and would bet large sums of money on the contest. Each had their own size drill they liked to use. I learned this when I lived on a ranch near Pearce, Arizona in 1916.

ALBERT SAGE,
Piqua, Ohio.

Join The Club . . .

The Deming (New Mexico) Gem and Mineral Society staged a cleanup from Interstate 10 to the Rock Hound Park area. We had 2 pickups and four cars and hauled trash all day long to the dumps.

Recently we took a trip down the road and once again people are throwing things. Why can't they leave places and highways clean? We are going to continue our cleanups, but I pity anyone caught throwing trash on the roads. Why can't others join us in keeping America beautiful?

EDWIN KOLEER,
Deming, New Mexico.

Your Desert . . .

I greatly enjoyed Mr. Pearce's article pertaining to desert ecology in the April issue. It's a shame that greed and apathy have supplanted good common sense and courtesy in the way many people treat our natural environments. The deserts are still places of wonder and beauty, but for how long?

LOHRMAN NELSON,
Santa Ana, Calif.

Sans Beard . . .

Sure like the new picture of the editor of Desert on the Letters page. That black beard was the only thing I ever saw in Desert I didn't like.

BEN SUMNER,
Sepulveda, Calif.

Calendar of Western Events

This column is a public service and there is no charge for listing your event or meeting—so take advantage of the space by send-in your announcement. However, we must receive the information at least two months prior to the event. Be certain to furnish complete details.

MAY 24, CALIFORNIA TURTLE & TORTOISE CLUB'S 6th annual show, Brookside Park (next to Rose Bowl), Pasadena, Calif. "Largest collection of live turtles and tortoises in the world." Public invited to enter specimens in competition. Displays. Admission free.

MAY 30 & 31, RIVERSIDE GEM AND MINERAL SOCIETY WESTERN GEM-BORIE, Alessandro Jr. High School, Dracea and Indian, Sunnymead, Calif.

MAY 30 & 31, RANDSBURG ROUNDUP sponsored by the California Association of 4 Wheel Drive Clubs, Randsburg, California. Family runs, family events, dancing. NO VEHICLE COMPETITION. \$5.00 vehicle registration fee.

JUNE 5-7, CALIFORNIA FEDERATION OF MINERALOGICAL SOCIETIES CONVENTION NAND SHOW, Alameda County Fair Grounds, Pleasanton, Calif. Displays of jewelry, minerals and polished stones. Public invited. Camper parking, movies, lectures, swaps, dealers.

JUNE 14, ANNUAL FIESTA & BARBECUE, Mission San Antonio, Jolon, California.

JUNE 20, ALL-TRIBES INDIAN DAY, Bluff, Utah. Old Navajo games, horse racing, fry bread and bow and arrow contests. Competitive Indian dancing.

JUNE 20 & 21, BARBED WIRE SHOW, second annual convention of the California Barbed Wire Collectors Association, Nordhoff High School, Ojai, Calif. Exhibits of barbed wire, fencing tools and related items. Admission free.

JUNE 20 & 21, BATTLE MOUNTAIN ROCK AND GEM SHOW, Battle Mountain, Nevada. Displays of gems, Indian artifacts, bottles, sea shells. Write Doris Wilson, Box 458, Battle Mountain, Nevada.

JULY 1-5, PORT HUENEME HARBOR DAYS CELEBRATION, Port Hueneme, Calif. Parades, carnival, boat displays and rides.

JULY 4, JARBIDGE CHUCK WAGON & DANCE, Jarbidge, Nevada, to raise funds for restoration of Nevada landmark.

JULY 3-5, FIESTA DE CACTOS & SUCCULENTES SHOW, Los Angeles State and County Arboretum, 301 N. Baldwin, Arcadia, Calif. Sponsored by the Cactus and Succulent Society of America. Admission free.

Map Information . . .

I have lived in Arizona for some 12 years, but my interest in rockhounding and spare-time prospecting was not aroused until I started reading Desert Magazine.

Could you tell me where I could pick up some maps on the Colorado River area around Lake Havasu City and Parker? We are just starting the city's first rockhound club.

MRS. S. K. HOOVER,
Lake Havasu City, Ariz.

Editor's Note: Good maps on the Colorado River are Kym's Guide Maps which can be purchased in most sports stores in the areas.

Honey Is Best . . .

In the February 1970 issue there is an article on hummingbirds by Elta Shively.

It is more or less widely known cane sugar, refined, is wholly worthless as a food. In addition to this fact the controversy over whether or not sugared water kills hummingbirds goes on apace with marked attempt to resolve the issue. One contention is that the constituents of refined cane sugar insidiously attack the livers of the birds, eventually killing them. So, in effect, Elta Shively is feeding the birds a solution that rightfully could be branded "Sweet Junk."

Honey is a by-product of the nectar and natural sugar extracted from blossoms by both hummingbirds and bees. It is this natural energy that sustains their lives. The birds readily accept the honeyed water in a solution made by mixing 1/3 honey, 2/3 water. Direct sunlight on the feeders should be avoided.

I have (I trust pardonably) assumed that the author would want to be made aware of the foregoing facts. Through making these revelations my own conscience feels less sullied; anyhow, that's the way it looks to me.

JOHN STURGES,
Edwards, Missouri.

Editor's Note: If Reader Sturges will again read the article he will find there is no mention of sugar water. A long-time champion and feeder of hummingbirds, Mrs. Shively points out that most feeders have directions for using commercially prepared food in powder form—not sugar.

Genuine Handmade Crafts

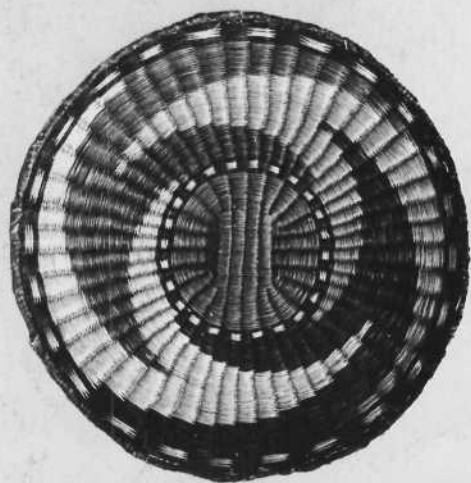


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SECOND MESA, ARIZONA

(See Map, Page 21)